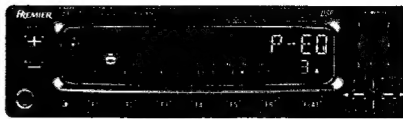


Service Manual

• DEQ-7500/US



ORDER NO.
CRT1462

DSP AUDIO PROCESSOR

DEQ-7500

DEQ-7550

US,EW

ES

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1. SPECIAL FEATURES OF THE DEQ-7500

Incorporating SFC*

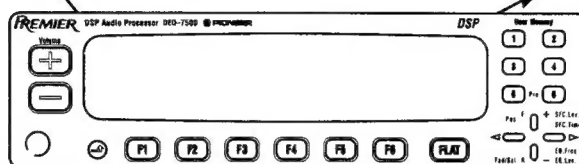
Five Kinds of Sound Field Programs

- STUDIO
- JAZZ CLUB
- CONCERT HALL
- CATHEDRAL
- STADIUM

* SFC: Sound Field Control

Diverse Equalizing Function

- ① Parametric Equalizer
Allows four-band adjustment on front and rear output separately.
- ② Graphic Equalizer
Allows seven-band adjustment on front and rear output at the same time.
- ③ Parametric Bass/Treble
Allows adjustment of bass/treble on front and rear output separately or at the same time.
- ④ Parametric Subwoofer/Center
Allows adjustment of frequency and level of subwoofer/center.
- ⑤ Six Preset Memory for the User
 - Memory Holding Function
 - Memory Protect Function



Staging Function

- Allows Selection of the Listening Position
- Matches listening position of sound image to your position in the vehicle
 - Image focus control enables fine tuning of the listening position of sound image to suit vehicle conditions.

Multifunction Remote Control

- ① Adjustment of Main Volume
- ② Equalizer Curve Control
- ③ Switching of SFC Mode, Effect Adjustment
- ④ Switching of Sources on Head Unit

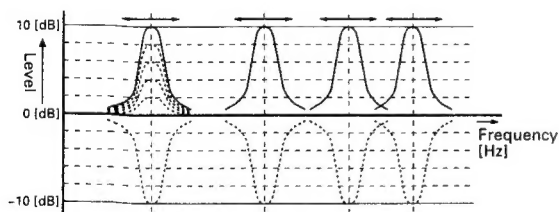


Equalizing Function

The following three functions from the equalizing functions incorporated in the unit switch the sound to a digital signal for processing.

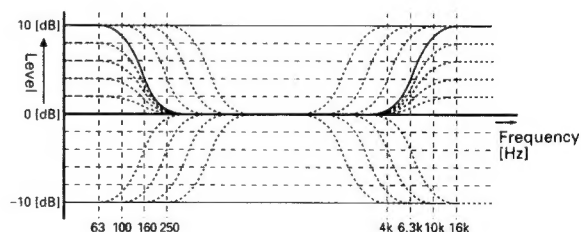
Parametric Equalizer

The parametric equalizer allows you to select four bands from 31 frequencies whose level you wish to adjust. It also allows separate adjustment of front and rear outputs.



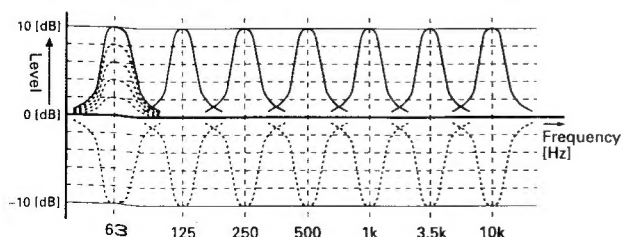
Parametric Bass/Treble

The unit's parametric bass/treble allows four stage selection of frequencies whose level you wish to adjust. It allows you to adjust the front and rear outputs separately or at the same time.



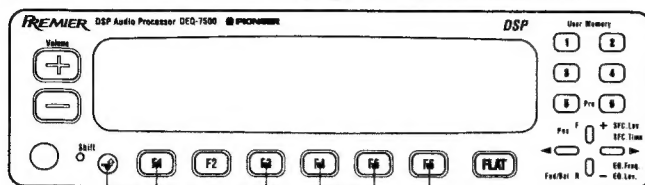
Graphic Equalizer

Allows you to adjust levels of preset seven bands.



2. SELECTING THE VOLUME-TONE CONTROL MODE

The unit incorporates the following modes for adjusting volume and tone. When setting volume and tone for each component, switch to the mode you wish to adjust first, using the illustration as a reference. For details, refer to the page number indicated in [].



Modes are switched using a combination of these buttons

Spectrum Analyzer Mode

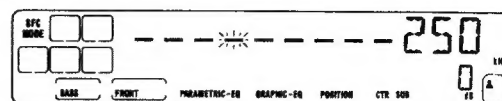
- Below are the four kinds of volume and tone is adjusted. Volume Adjustment [4], Fader Adjustment [4], Balance Adjustment [4], Sound Field Control (SFC) [5].



⑤: The mode will switch with each press of the button

F1 : Bass and Treble Setting Mode [6]

- Adjust bass/treble on the front and rear output separately or at the same time.



F3 : Parametric Equalizer Mode [8]

- Adjust parametric equalizer on the front and rear output separately.



F4 : Graphic Equalizer Mode [8]

- Adjust graphic equalizer.



F5 : Listening Position Setting Mode [5]

- Adjust the listening position of the sound image. Refer to "Using Listening Position" on page 5 for details.

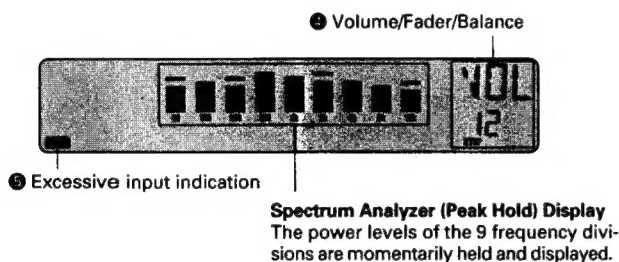
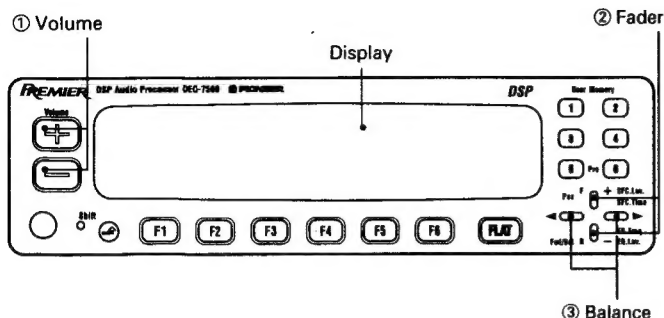


F6 : Sub-woofer/Center Setting Mode [9]

- Adjust frequency level of center and subwoofer output.



3. ADJUSTING THE VOLUME



Before adjusting the volume

When you use the unit for the first time, set the volume of the head units (such as the cassette deck) to the desired level using the following steps in order to adjust the total volume on the unit.

① Press the (-) side of button ① to set the volume of the unit to "VOL 0 STEP".

② Set the volume of the head unit to "23".

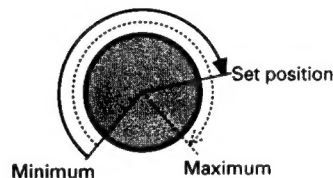
To adjust the volume on the head unit, refer to the Owner's Manual that accompanies the head unit.

Cautions in Adjusting Head Unit Volume

- When the head unit volume is excessive (excessive input to the unit), "CLIP" ⑥ will be indicated on the display as a warning. In this case, turn the volume on the head unit down to the point where "CLIP" is no longer displayed.
- When you feel a distortion in the sound even though "CLIP" ⑥ is not indicated on the display, turn the volume on the head unit down.
- The volume on the head unit will return to the initial setting when you remove the car battery or press the clear button on the head unit. In this case, set the volume again.

Note:

The volume's set point is not indicated on the display when you adjust the volume on the head unit by turning the volume control. In this case, set the volume control on the head unit to the position illustrated below, in accordance with step ②.



Adjusting the Volume

Pressing the (+) side of button ① increases the volume, while the (-) side of button ① decreases it.



Notes:

- Always keep the volume inside the car at a level that allows you to hear outside sounds.
- Avoid high-volumes listening for long periods while the car engine is off or idling since this may exhaust the battery.

Adjusting the Fader

This function controls the between the front and rear speakers of a 4-speaker system. Pressing the upper side of button ② shifts the balance to the front speakers, while the lower side of button ② shifts it to the rear speakers.

For 2-speaker system, set to "FAD 0".



Adjusting the Balance

Pressing left side of button ③ shifts the balance to the left speaker, while the right side of button ③ shifts it to the right speaker.

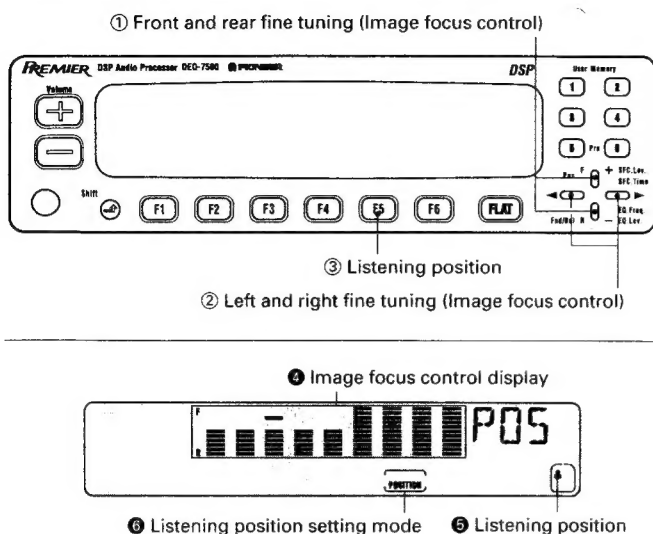


Notes:

- When you're adjusting fader or balance settings, the indicator will stop at the center setting.
- About 8 seconds after adjustment has been made, the display returns to its previous state.

4. USING LISTENING POSITION

Correction of sound image in accordance with your position in the vehicle



The distances to the front and rear, and left and right speakers will differ depending on your position in the vehicle. Therefore, the time it takes for the sound from each speaker to reach the listeners will vary, resulting in destabilized sound image. For example, the direction from which the vocals are heard may be unclear.

This function allows you to adjust the level and the time lag in the sound from the front and rear, and left and right speakers, and stabilize the sound image.

5. USING SOUND FIELD CONTROL

What is Sound Field Control? Creation of Sound Field

"Sounds" at a concert reach listeners from different directions and with different time lags. This is because the sounds resound in the space in the concert hall and resound off the ceilings and walls. But the sound field created in a vehicle is unique to the car audio. This is because it is not possible to obtain sufficient space or resonance in a vehicle. The DSP (Digital Signal Processor) incorporated in the unit processes sounds and creates five kinds of sound fields.

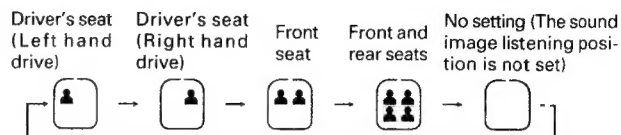
Note:

- As sound field control is most effective when the sound image is set at the listening position, refer to "Using the Listening Position" in the previous section to set the sound image at the listening position.
- Sound field control is more effective from the front output than the rear output of the unit. If you have a 2 speaker system, use the front output.

Note:

- The listening position is adjusted to match your position in the vehicle. However, other listening position may be more effective, depending on the model of the vehicle and the positions of speakers. Compare the sounds and set the listening position to the one that allows you to enjoy the most natural sound.

- Switch to listening position mode (Refer to "Selecting the Volume-tone Control Mode" on page 3.)
- Set the listening position to match your position in the vehicle. Every time you press button ③, the mode switches as follows:

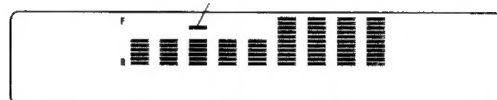


Note:

Setting is largely made by carrying out the operations up to step ②. Step ③ fine tunes the sound image listening point, enabling the sound to be set to the position where it is heard most naturally.

- Use the image focus control function to fine tune the sound image listening point to the front and rear, and left and right directions.

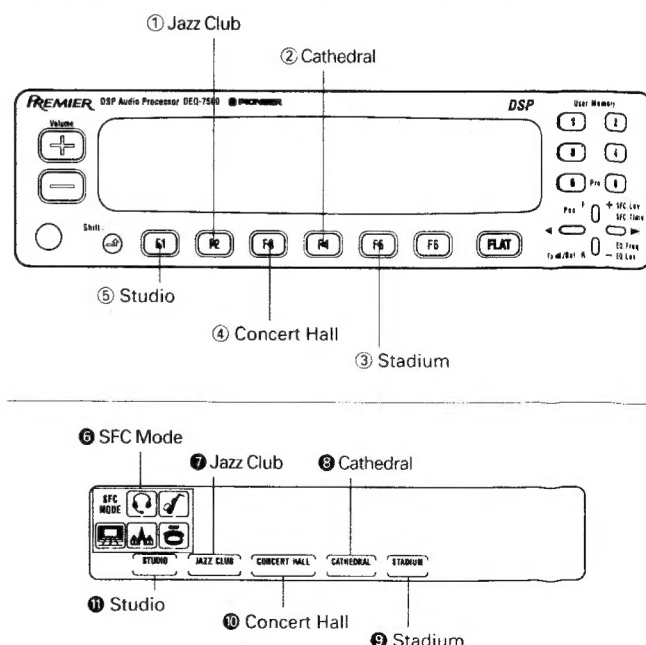
This bar roughly indicates the sound image listening position



(Example: Indication of driver's seat (Left hand drive))

Pressing the upper side of the button ① allows fine tuning to the front, while pressing the lower side allows tuning to the rear. Pressing the left side of button ② allows fine tuning to the left, while pressing the right side of the button allows tuning to the right.




Using the Sound Field Control (SFC)





- Place the unit into spectrum analyzer mode. [See "Selecting the Volume-tone Control Mode" on Page 3.]
- Select the sound field program.

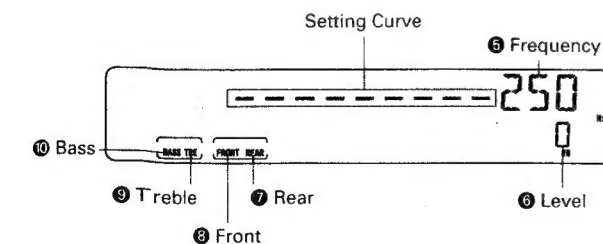
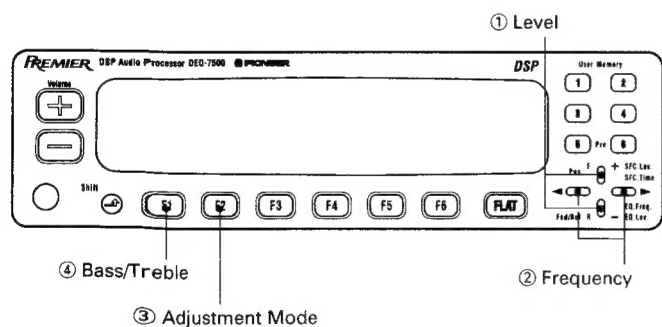
Select a button from buttons ① to ⑤. (When you press the same button again, the button's function will be cancelled.)

Sound Field Program Stored in the Unit's Memory

Button	Symbol	SFC Mode	Outline of the Sound Field
F1		STUDIO (STUDIO)	The sound image is positioned to the front without echo. A basic sound field is created by processing initial sounds resounding against the walls of a relatively small mixing room.
F2		JAZZ CLUB (JAZZ CLUB)	The image of the sounds were taken from the space of a jazz club able to accommodate an audience of 50 to 100. This is most effective for use with live recordings. It creates very realistic echoes and sounds resounding against the walls.
F3		CONCERT HALL (CONCERT HALL)	This creates the sounds of an exclusive classical music hall able to accommodate an audience of between 1,000 to 2,000. With resounded sounds at a speed of 200 m sec. and ample echo appropriately distributed to each speaker, you can enjoy expansive sounds and their depth.

Button	Symbol	SFC Mode	Outline of the Sound Field
F4		CATHEDRAL (CATHEDRAL)	This creates the kind of sound field found in a church, mainly with ample, resonant echoes. This is effective with classical music. The feature of this setting is the enveloping echoes.
F5		STADIUM (STADIUM)	The image of the sounds were taken from a live performance at an outdoor stadium. Echoes are created by sounds resounding against distant walls. That effect creates a sound field that gives you the feel of the expansive space of a stadium.

6. ADJUSTING BASS AND TREBLE



Features of Bass and Treble Adjustment

- Changing to the tone adjustment mode allows you to adjust bass and treble of the front and rear speakers either separately or at the same time.
- You can set the desired frequency to serve as the basis of bass and treble adjustment can be set.
- The unit can be set to memorize different bass and treble settings.

Selecting the Tone Adjustment Mode

Your unit allows you to select two tone adjustment modes. Select the mode of your choice before adjusting the bass or treble.

Separate Adjustment Mode

In this mode, the tone of the front and rear speakers is adjusted separately

Combined Adjustment Mode

In this mode, the tone of both front and rear speakers is adjusted at the same time

1 Place the unit into bass and treble mode.

[See "Selecting the Volume-tone Control Mode" on page 3.]

2 Each press of button ③, will switch the adjust mode as follows:



Adjusting Bass and Treble

This function allows you to select the frequencies to serve as the basis for bass and treble adjustments.

Using the Separate Adjustment Mode

In this mode, the tone of the front and rear speakers is adjusted separately. [See the previous section, "Selecting the Tone Adjustment Mode" for an explanation of the separate adjustment mode.]

1 Place the unit into Bass and Treble Setting Mode.

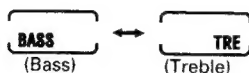
[See "Selecting the Volume-tone Control Mode" on page 3.]

2 Press the button ③ to select the set speakers whose tone is to be adjusted (front or rear).

[See the previous section, "Selecting the Tone Adjustment Mode" for an explanation of the separate adjustment mode.]

3 Press the button ④ to select bass or treble.

Each press of the button will switch it as follows:



4 Make the desired adjustment.

Adjust frequencies and bass and treble levels.

• Frequency

Pressing the left side of button ② will lower the frequency, while pressing the right side will raise the frequency. The following frequencies can be specified for of bass and treble adjustment:

Bass : 63 Hz → 100 Hz → 160 Hz → 250 Hz

Treble: 4 kHz → 6.3 kHz → 10 kHz → 16 kHz

• Level

Pressing the upper side of button ① will increase the level, while pressing the lower side will decrease the level.

-10dB → -8dB → → -2dB → 0dB → +2dB → → +8dB → +10dB

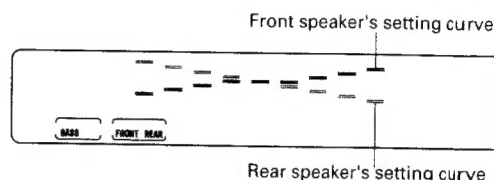
5 Repeat steps 2 to 4 to adjust the bass or treble of the other set of speakers.

Note:

When bass/treble are switched to combined adjustment mode after they are adjusted in their own mode separately, and when bass/treble in the front and rear output are switched to combined adjustment mode after they are adjusted in their own mode separately, front and rear settings done separately in their own mode will remain, and the bass/treble curves will be adjusted at the same time for those settings.

Points on the Use of the Combined Adjustment Mode After Adjusting the Tone in the Separate Adjustment Mode

- The set bass/treble curves are indicated simultaneously using a flashing bar (gray bar in the illustration below) for the rear setting and a illuminated bar (black bar in the illustration below) for the front setting.



- Adjusting bass/treble allows you to adjust frequencies and front and rear levels at the same time. However, when either the front or rear setting is at the maximum adjustment limit, further adjustment will not be possible.
- When front and rear bass/treble frequencies and levels are adjusted separately using their own modes, the frequency and level indicated on the display are the ones for front or for rear, depending on which was adjusted last.

Using the Combined Adjustment Mode

In this mode, the tone of the front and rear speakers is adjusted at the same time. [See the previous section, "Selecting the Tone Adjustment Mode" for an explanation of the separate adjustment mode.]

1 Place the unit into Bass and Treble Setting Mode.

[See "Selecting the Volume-tone Control Mode" on page 3.]

2 Press the button ③ to select the combined adjustment mode.

[See the previous section, "Selecting the Tone Adjustment Mode" for an explanation of the separate adjustment mode.]

3 Press the button ④ to select bass or treble.

(Refer to step 3 in "Using the Separate Adjustment Mode.")

4 Make the desired adjustment.

(Refer to step 5 in "Using the Separate Adjustment Mode.")

7. EQUALIZER ADJUSTMENT

Selecting the Equalizer Mode

Your unit provides the two equalizer modes described below. Select the desired equalizer mode before adjusting the equalizer.

Features of the Parametric Equalizer Mode

- Allows adjustment of any 4 frequencies (bands) in an range from 20 Hz to 20 kHz
- Allows the equalizer curve for the front and rear speakers to be adjusted separately.

Note:

When the parametric equalizer has been set, the spectrum analyzer mode display will indicate "P-EQ."

Features of the Graphic Equalizer Mode

- Allows level adjustments for frequencies of 63 Hz, 125 Hz, 250 Hz, 500 Hz, 1 kHz, 3.5 kHz and 10 kHz.

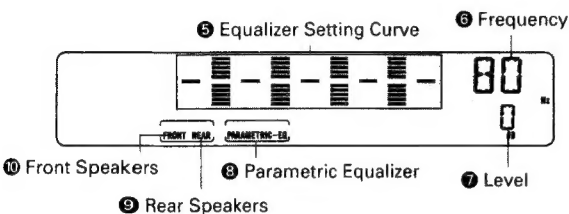
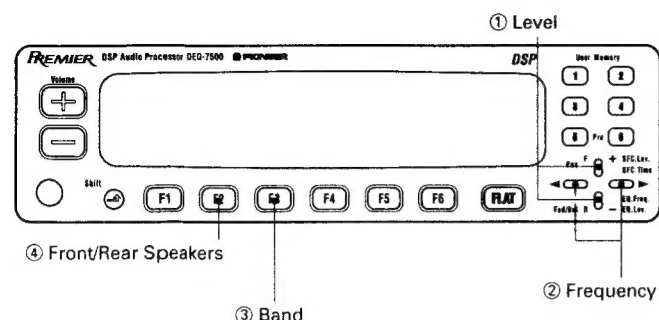
Note:

When the graphic equalizer has been set, the spectrum analyzer mode display will indicate "G-EQ."

Cautions in adjusting the Equalizer:

The levels for parametric and graphic equalizer displays can not be set at the same time. For example, switching to graphic equalizer mode and setting the level after you have set the frequency and level on the parametric equalizer will result in all bands of the parametric equalizer becoming flat (0 dB). Refer to "Using the Tone Control Memory" on page 9 to set and store memory tone controls.

Using the Parametric Equalizer



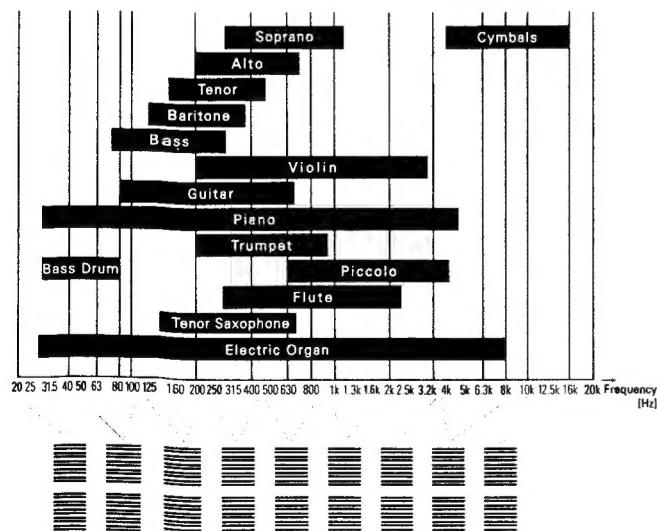
6 Adjust another band.

Repeat steps 3 to 5 for another band.

- Repeating steps 2 to 6 allows you to set the equalizer curve for the front and rear speakers separately.

In adjusting frequencies:

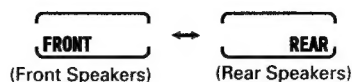
- Frequencies being set (of frequencies which are possible to set) and band correspond as shown below. Adjust them using the illustration as a reference.



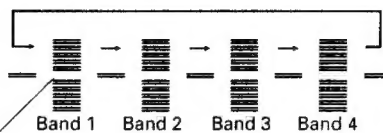
1 Place the unit into parametric equalizer mode.

[See "Selecting the Volume-tone Control Mode" on page 3.]

2 Press the button 4 to select the set of speakers (front / rear).



3 Press the button 3 to select the band to be adjusted.



Reverse bar flash to indicate the setting for the bands being set.

4 Set the desired frequency.

Pressing the right side of button 2 increases frequency, while the left side decreases frequency.

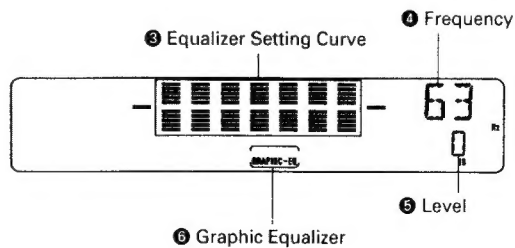
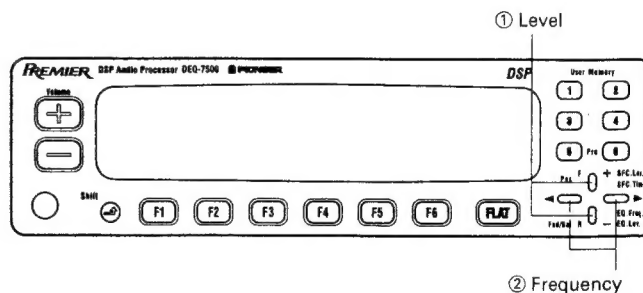
Note:

- It is not possible to set frequencies with bands (band 1 to 4) overlapping each other.

5 Set the desired level

Pressing the upper side of button 1 increases the level, while the lower side decreases the level.

Using the Graphic Equalizer



8. ADJUSTING THE SUB-WOOFER/CENTER

1 Place the unit into graphic equalizer mode.

[See "Selecting the Volume-tone Control Mode" on page 3.]

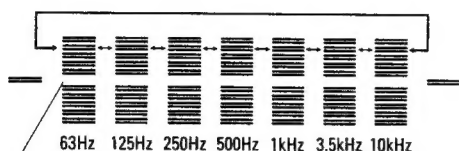
2 Set the desired frequency.

Pressing the right side of button ② increases frequency, while the left side decreases frequency.

3 Set the desired level

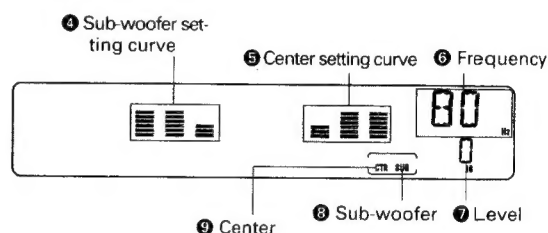
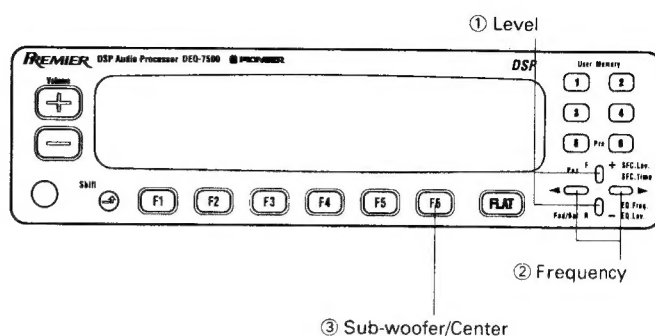
Pressing the upper side of button ① increases the level, while the lower side decreases the level.

4 Set another frequency.



Reverse bars will flash to indicate the setting for frequencies which are to be set.

Repeat steps ② and ③.



Adjust the frequency and level of the subwoofer and center output. The center speaker supplements missing sounds between left and right speakers. Enjoy the dynamic, heavy bass created by the sub-woofer.

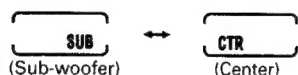
9. USING THE TONE CONTROL MEMORY

1 Place the unit into "Sub-woofer/Center Setting Mode".

[See "Selecting the Volume-tone Control Mode" on page 3.]

2 Press button ③ to select the output of Adjustment. (Sub-woofer/Center).

Each press of the button will switch it as follows:



3 Make the desired adjustment.

Adjust frequency and level of the subwoofer and center output.

• Frequency

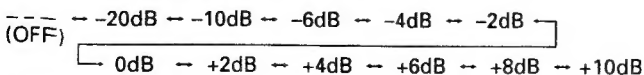
Pressing the left side of button ② will increase the frequency, while pressing the right side will decrease the frequency. The following frequencies can be specified for of sub-woofer and center adjustment:

Sub-woofer : 50 Hz ~ 80 Hz ~ 120 Hz

Center : 300 Hz ~ 2.5 kHz ~ 6.0 kHz

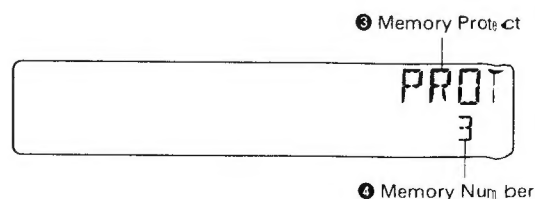
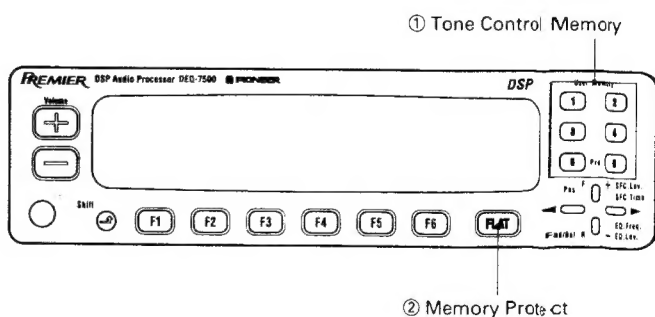
• Level

Pressing the upper side of button ① will raise the level, while pressing the lower side will reduce the level.



Note:

- The sub-woofer/center output becomes a monaural output. The sub-woofer/center output is not changed by adjusting the balance of this set.



The memory buttons can be used to memorize the bass, treble, and equalizer settings of your choice.

Memory Protect Function

The unit incorporates memory protect function to prevent you or the memory you have set for your favorite tone controls from being mistakenly erased. Once this function has been set, memory buttons ⑤ and ⑥ will become unavailable for tone control memory operations. Set the function when needed.

Note:

- The details stored in the memory buttons will be erased and the tone control memory cancelled when the car battery is removed or the reset button has been pressed. This will happen even if the memory protect function has been set. In this case, reset the function.
- The memory protect function will not be operating when you use the unit for the first time.

① Hold down button ② for more than 2 seconds.

When you hold down the same button for more than 2 seconds, it becomes cancelled.

- Holding down the button for less than two seconds switches to the flat setting.

Note:

While you are setting the memory protect function, no indication will be on the display. Should you attempt to store memory in the memory buttons ⑤, ⑥, "PROT" ③ will flash on the display, indicating that the memory protect function is operating and memory is therefore unable to be stored.

Memorizing Tone Settings

Note:

Tone controls can be stored in memory while the unit is in the following three modes. Pressing a tone control memory button while the unit is in a mode other than the below three switches the unit to tone setting (refer to the next section).

"Bass and Treble Setting Mode"

"Parametric Equalizer Mode"

"Graphic equalizer Mode"

① Adjust the bass and treble as desired.

[See "Adjusting Bass and Treble" on page 6.]

② Adjust the equalizer.

[See "Equalizer Adjustment" on page 7.]

③ Memorize the setting.

Press and hold down one of the buttons in bank ① for at least two seconds.

- Holding down the button for less than 2 seconds recalls the previously memorized tone or equalization settings. [See next section.]

Note:

Memory can not be stored in tone control memory buttons ⑤ and ⑥ when the memory protect function has been set. Should you wish to store memory, cancel the function by referring to "Memory Protect Function" in the previous section.

Recalling Memorized Tone Settings

The following procedure allows you to recall tone and equalizer settings that have been previously memorized to the memory buttons.

① Recall the desired tone setting.

Once a tone setting is assigned to a button in bank ①, you just need to press that button to set it in. This also causes the number of the button pressed to appear at position ④ on the display.

- Holding down the button for more than 2 seconds activates the memorization function. [See previous section.]

10. CONNECTING THE UNITS

- Before Making final connections, make temporary connections then operate the unit to check for any connection cord problems.
- Refer to the owner's manual for details on connecting the various cords of the power amp and other units, then make connections correctly.
- Be sure to connect the memory power supply lead (orange) to a terminal that is always supplied with power regardless of the vehicle's ignition switch position.
- Don't pass the orange lead through a hole into the engine compartment to connect to the battery. This will damage the lead insulation and cause a very dangerous short.
- The separately sold digital fiber optic cable CD-D60 or a similar product must be used to connect the main unit with the multi-play CD player or CD player. To obtain the CD-D60, please contact your nearest PIONEER dealer.
- The Digital Fiber Optic Cable transmit light through its terminal structure and therefore should not be subjected to sharp bending or high pressure. If bending cannot be avoided, make sure the bend does not describe a circle with a radius of less than 25 mm. For details, refer to the precautions included with the Digital Fiber Optic Cable.

When using digital input


Even when using digital input, use analog input (RCA terminal) at the same time. Refer to example 2 of the connection diagram for wiring.

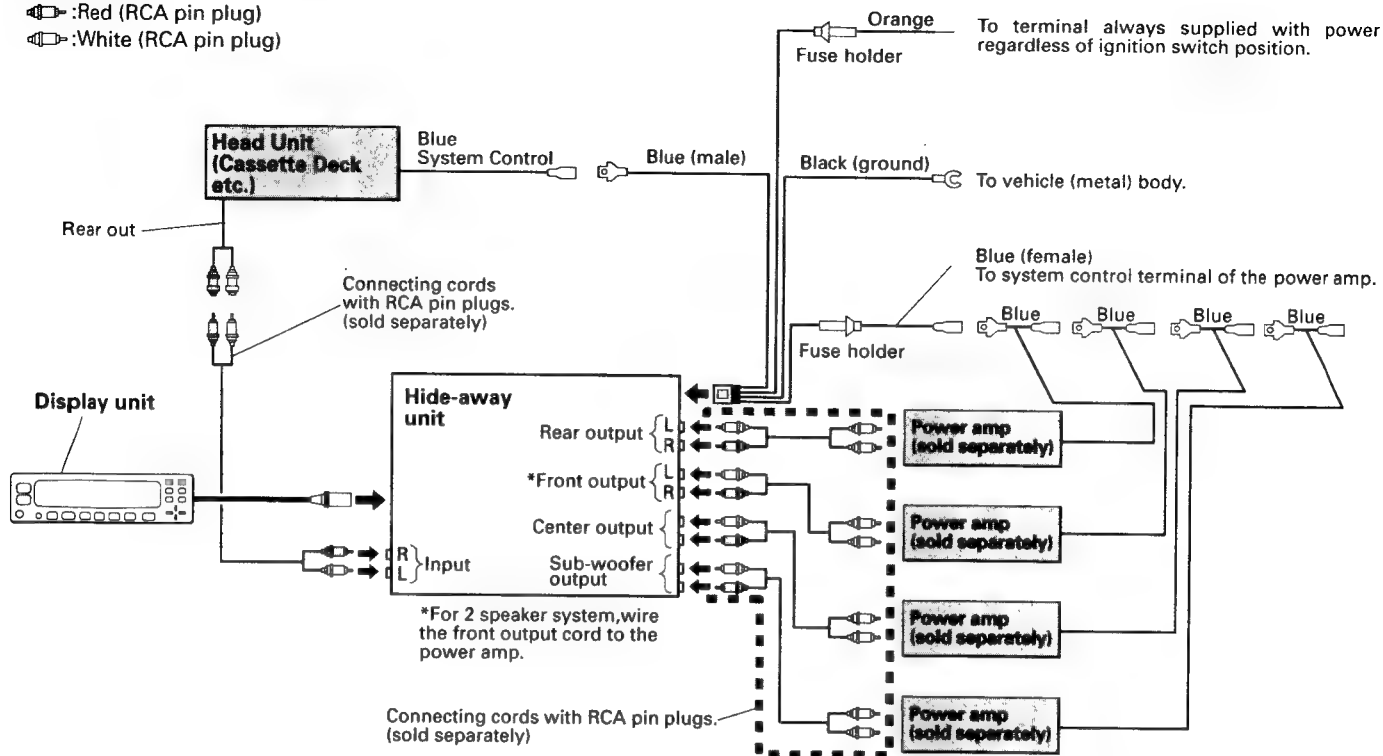
Upon Completion of Wiring

After wiring has been completed, use a sharp point such as a pencil tip to press the clear button on the Hide-away unit, main unit and the multi-play CD player

Connection Diagram

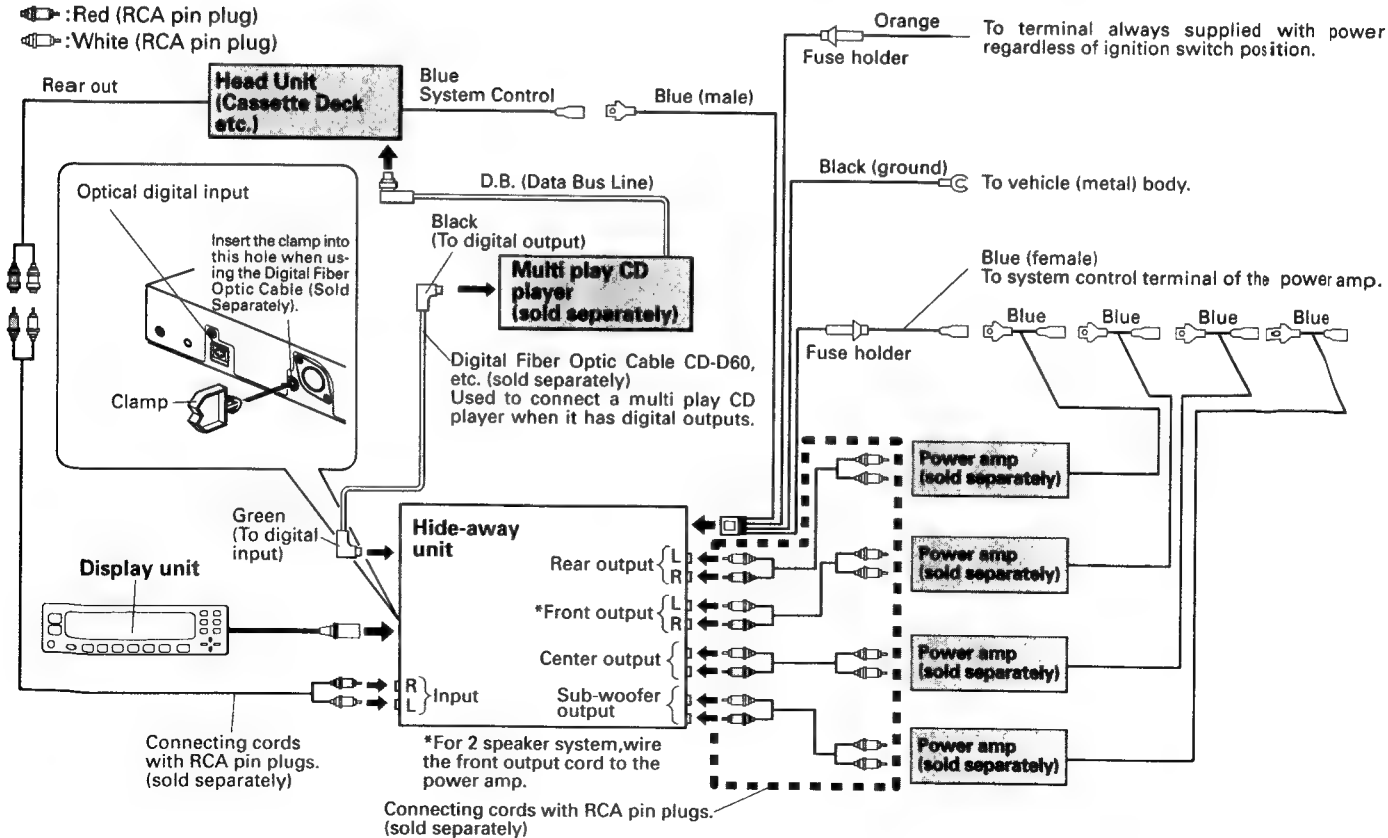
Example 1:

-  :Red (RCA pin plug)
 :White (RCA pin plug)



Example 2:

- : Red (RCA pin plug)
: White (RCA pin plug)



11. SPECIFICATIONS

Power source	14.4V DC (10.8 — 15.6 V allowable)
Grounding system	Negative type
Dimensions (Display unit)	170 (W) × 46 (H) × 25 (D) mm
..... (6-3/4 (W) × 1-3/4 (H) × 1 (D) in.)(US)	
..... (Hide-away unit)	203 (W) × 35 (H) × 178 (D) mm
..... (8 (W) × 1-3/8 (H) × 7 (D) in.)(US)	
Weight	1.4 kg (3.1 lbs)(US)
Tone controls (parametric)	
(Bass) Frequency	63 Hz, 100 Hz, 160 Hz, 250 Hz
(Treble) Frequency	4 kHz, 6.3 kHz, 10 kHz, 16 kHz
Equalization range	± 10 dB
Equalizer	
(4 band parametric EQ)	
Frequency	20 Hz, 25 Hz, 31.5 Hz, 40 Hz
.....	50 Hz, 63 Hz, 80 Hz, 100 Hz
.....	125 Hz, 160 Hz, 200 Hz
.....	250 Hz, 315 Hz, 400 Hz
.....	500 Hz, 630 Hz, 800 Hz
.....	1 kHz, 1.3 kHz, 1.6 kHz
.....	2 kHz, 2.5 kHz, 3.2 kHz
.....	4 kHz, 5 kHz, 6.3 kHz, 8 kHz
.....	10 kHz, 12.5 kHz, 16 kHz, 20 kHz
Equalization range	± 10 dB
(7 band EQ)	
Frequency	63 Hz, 125 Hz, 250 Hz, 500 Hz
.....	1 kHz, 3.5 kHz, 10 kHz
Equalization range	± 10 dB
Sub-woofer output	
Frequency	50 Hz, 80 Hz, 120 Hz
Level	-∞ — +10 dB
Center output	
Frequency	300 Hz, 2.5 kHz, 6.0 kHz
Level	-∞ — +10 dB
Distortion	0.01 % (1 kHz, 250 mV, 20 kHz LPF)
Frequency response	20 — 20,000 Hz (0, -1dB)

Signal-to-noise ratio

(Optical Input)	96 dB (IHF-A network)(US)
.....	96 dB (IEC-A network)(ES)
(RCA Input)	90 dB (IHF-A network)
.....	90 dB (IEC-A network)(EW,ES)
Input level/Impedance	500 mV/22 kΩ
Output level/Impedance	500 mV/1 kΩ

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:

Specifications and the design are subject to possible modification without prior notice due to improvements.

12. DISASSEMBLY

● Removing the cover.

1. Remove the two screws.
2. Remove the cover.

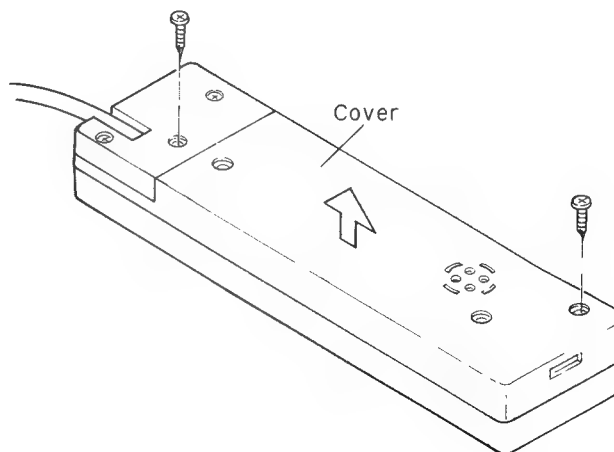


Fig. 1

● Removing the Display P.C. Board.

1. Disconnect the two connectors.
2. Remove the two screws.
3. Press the claws at two locations indicated by arrows and then raise the Display P.C. Board to remove.

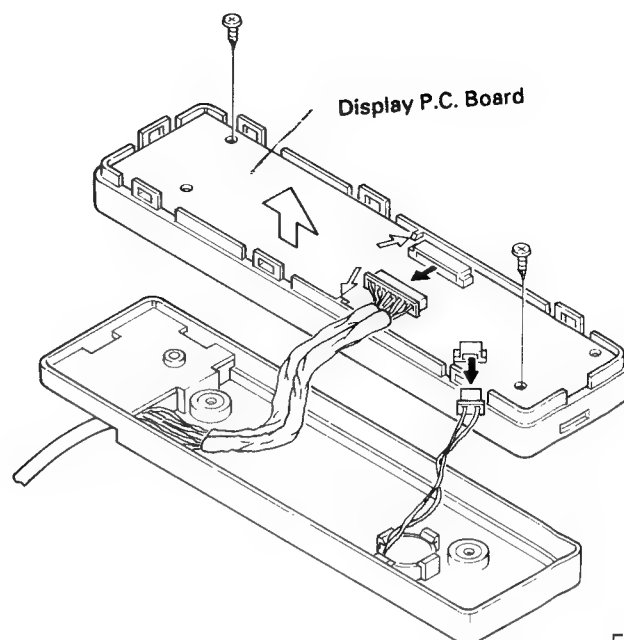


Fig. 2

● Removing the case.

1. Remove the four screws.
2. Remove the case.

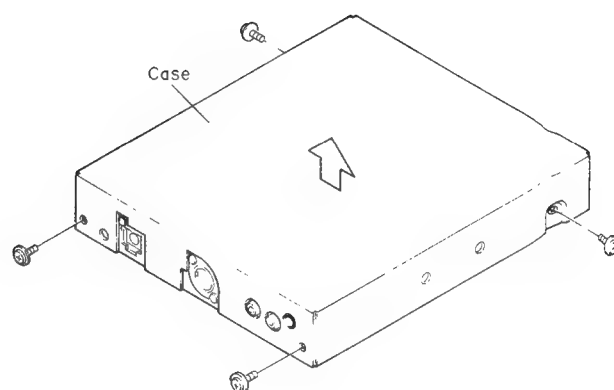


Fig. 3

● Removing the chassis.

1. Remove the five screws.
2. Unbend the claws at five locations indicated by arrows until straight.
3. Remove the chassis.

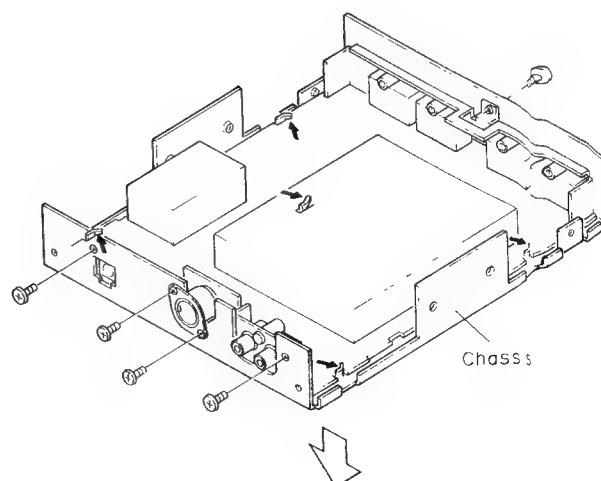


Fig. 4

• Removing the DSP Unit.

1. Remove the solders and unbend claws at four locations indicated by arrows.
2. Remove the plug.
3. Remove the two connectors.

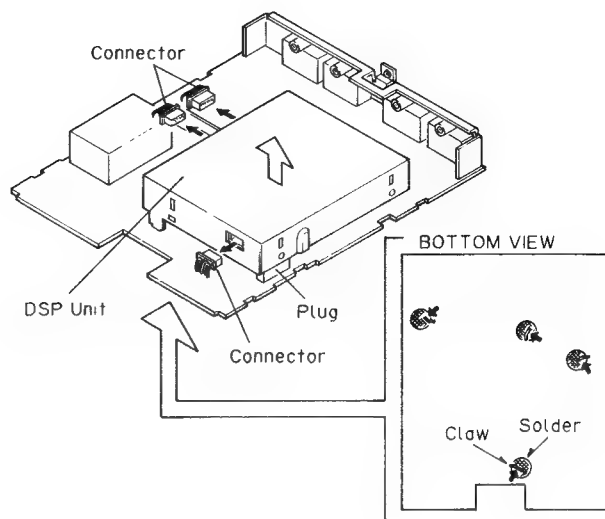


Fig. 5

• Removing the DSP P.C. Board. (1/2)

1. Insert tweezers to remove the case.

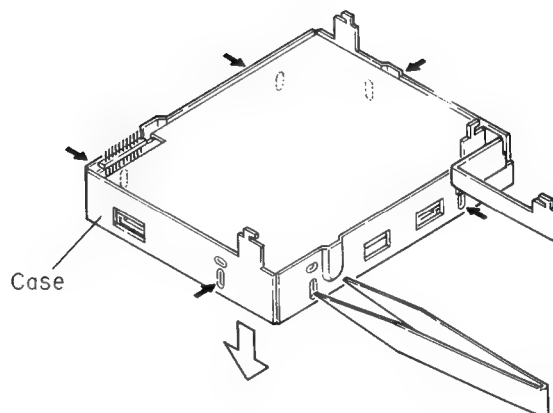


Fig. 6

• Removing the DSP P.C. Board. (2/2)

1. Remove the solder at a location indicated by arrow.
2. Unbend the claws at three locations until straight.
3. Remove the case.

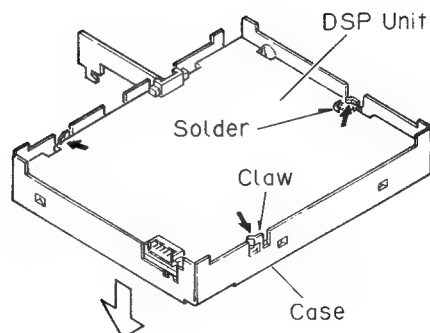
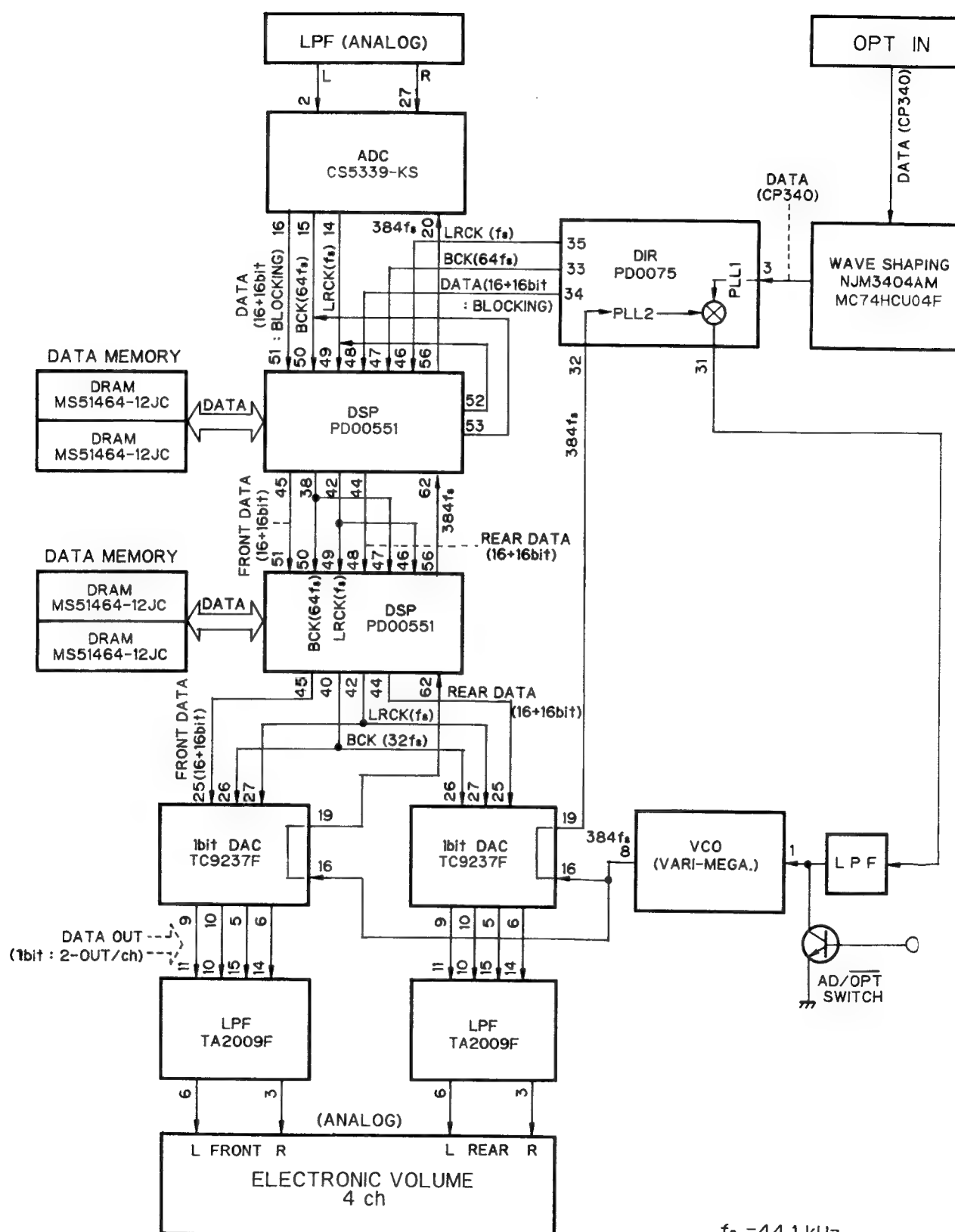


Fig. 7

13. CIRCUIT DESCRIPTION

• Audio signal flow



$f_s = 44.1 \text{ kHz}$

Fig. 8

13.1 Initializing the system

Setting all the input ports of the system microcomputer (PD4374C); BSENS (pin48), BTB (pin47) and DSENS (pin 46) at L brings $\overline{\text{SUBPW}}$ (pin39) to L, which allows Vdd to be supplied to the key microcomputer (PD4334B) via Q513.

Then, after the key microcomputer has been reset, an enable code is sent from REMOUT (pin5) to REMIN (pin49) of the system microcomputer to initialize the system.

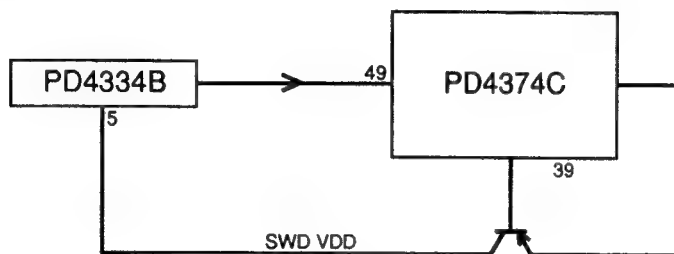


Fig.9

Note) If the key microcomputer does not transmit an enable code within 300 msec. after $\overline{\text{SUBPW}}$ has been set at L, the communication is regarded as being abnormal. In this case, put $\overline{\text{SUBPW}}$ in Hi state, reset the key microcomputer and reinitiate the above procedure. If this procedure fails to be done five times, initializing can be accomplished only by inputting either BTB or DSENS and BSENS again.

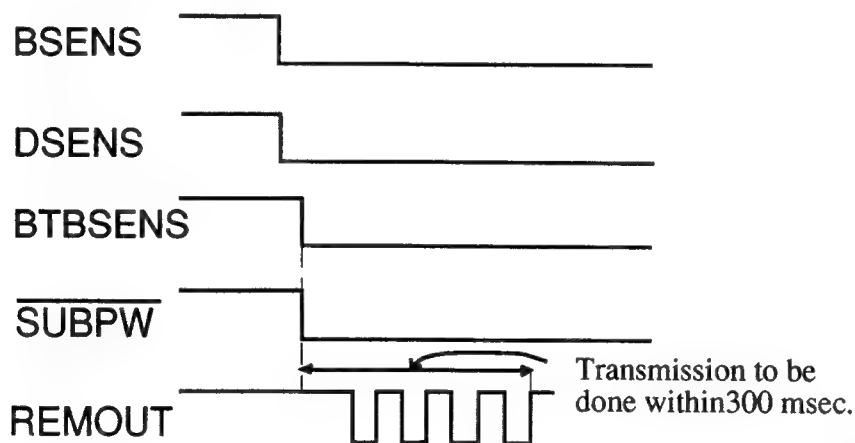


Fig.10

13.2 Audio signal flow

- 1) Analog signals are amplified about 14 dB by the flat amplifier and input through LPF to the AD converter for conversion into digital signals.
- 2) The data converted into 16-bit digital signals by the AD converter is input to pin 51 of IC806 for signal processing (GEQ, parametric).
- 3) The data for front assigned at pin 45 (AOUT1) of IC806 and the data for rear assigned at pin 44 (AOUT2) are input to the second chip IC807. After signal processing (position control, parametric, BASS, TRE) is carried out again, both the data are converted into analog signals through the LPFs of DA converters (IC811 and IC813) for the front data and rear data.
- 4) As for SFC, reverberation is produced by IC804 and IC805 and initial reflecting sounds are produced by IC801 and IC802.

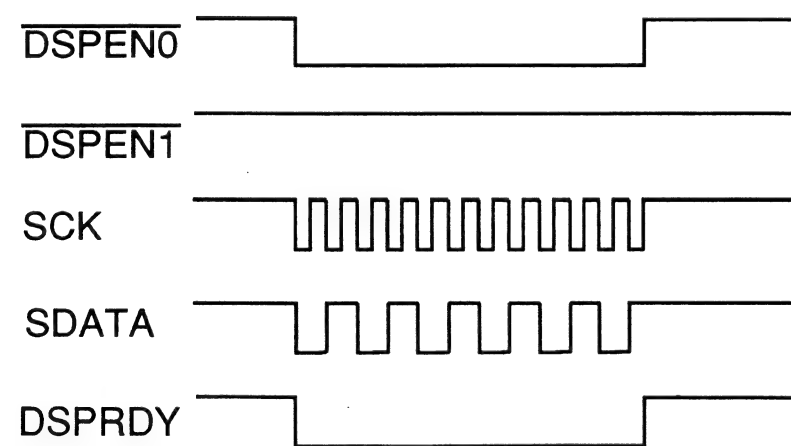
13.3 Communication between DSP and the system microcomputer

Communication between PD4374 and IC803 and IC806 (PD00551) is carried out by sending 8-bit data and by verifying a return of DSPRDY.

Two DSP chips commonly use SCK and SDATA, so that selection of a chip is made by DSPEN0 and DSPEN1 that specify a chip with which the system will communicate.

When DSPEN is placed in Hi stste, however, the sent data is ignored.

For actual communication, if data is to be sent to IC806, set DSPOEN0) at L and DSPEN1 at Hi to select IC806 and send 8-bit data as one cycle using SCK and SDATA. When DSPRDY does not become Hi, the communication is regarded as being abnormal. In this case, reset the DSP by DSPRESET and retry communication.



(When data is sent to IC806.)

Fig.11

13.4 OPT analog switching

- 1) When optical data input is incoming from a multiplexer channel, etc. via CN601 (optical input receptacle). the data is input to pin 3 of PD0075 (IC810) through the waveform shaping circuit. This brings ERR1, 44.1K of IC810 to L, which, in turn, brings ERR1 assigned at pin 19 of PD4374C to L.
- 2) When pin 19 of PD4374C becomes L, pin 67 of ADC/DiR is put in L state.
- 3) Setting ADC/DiR at L turns Q802 off. Then, IC810, IC808 and IC813 makes PLL, and VCO is locked to 3845S (16.934MHz). This brings ERR2 assigned at pin 39 of IC810 to L. which is input to pin 18 of PD4374C.
- 4) Setting pins 18 and 19 at L causes PD4374C to judge the input as optical data . Then , PD4374C calls a program out of the IC 552 to switch the input of DSP (IC806) to optical input. The input change is accomplished by sending the data to DSP.

Note) Cancel release of ERR1 and ERR2 is carried out at the fifth leading edge of the pulse which is input from CNTR, pin 9 of IC810 after the recovery from an error.

1 Waveform shaping circuit

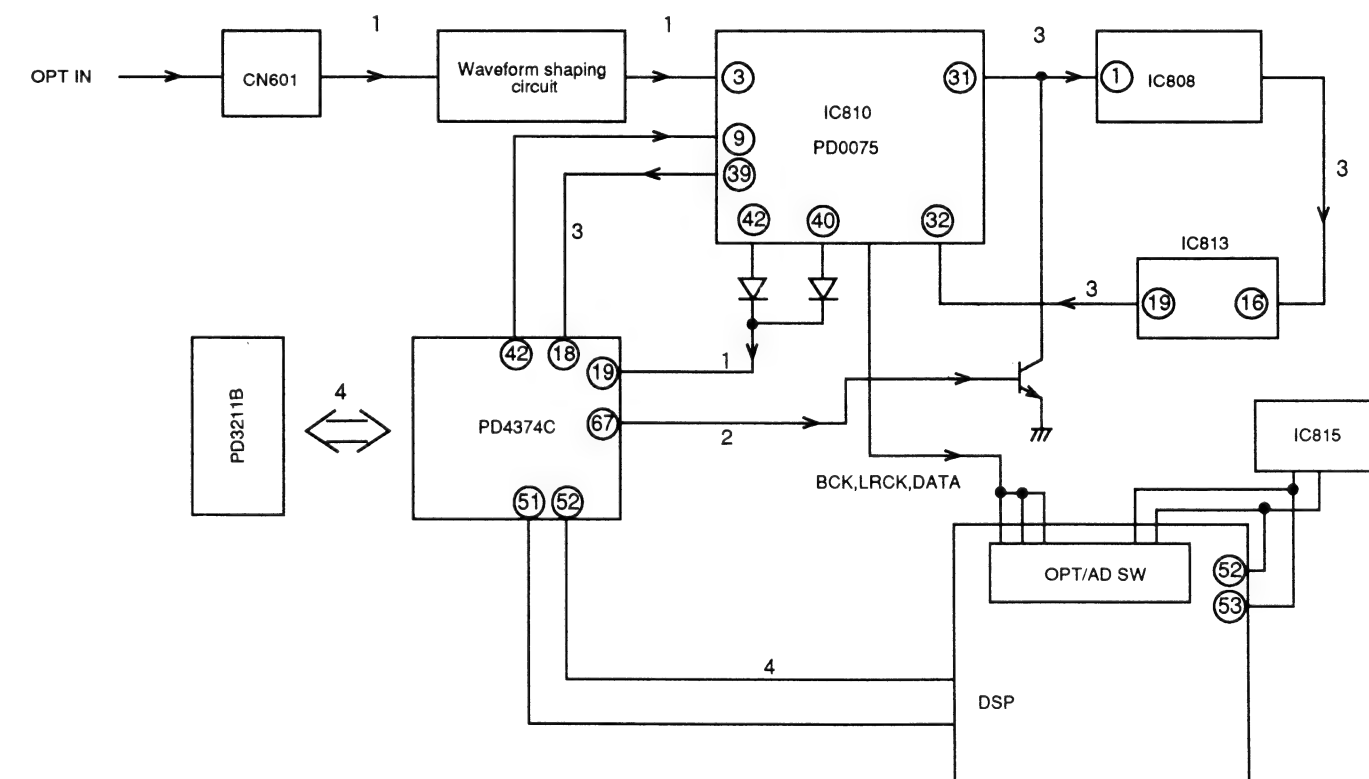
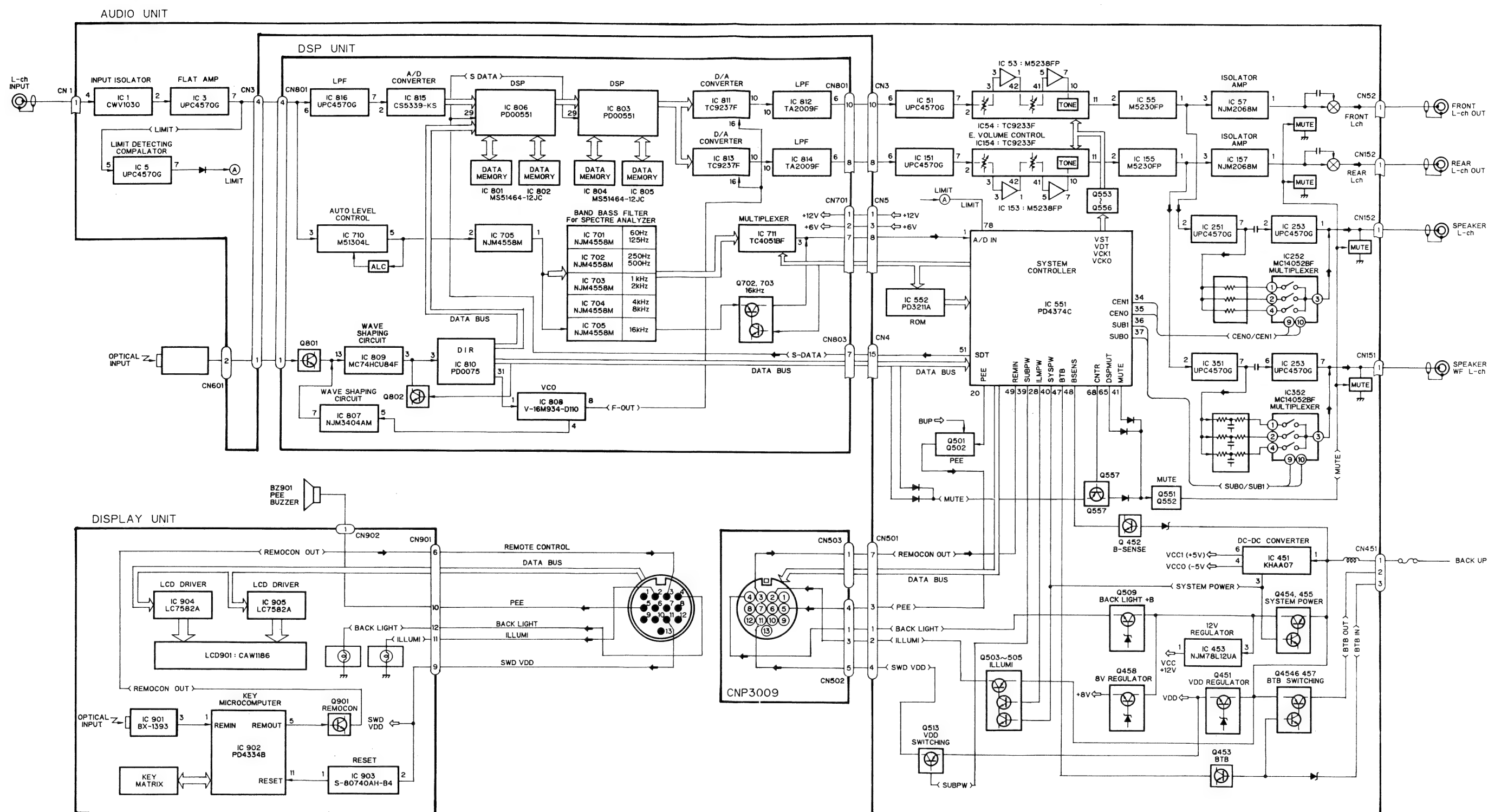


Fig.12

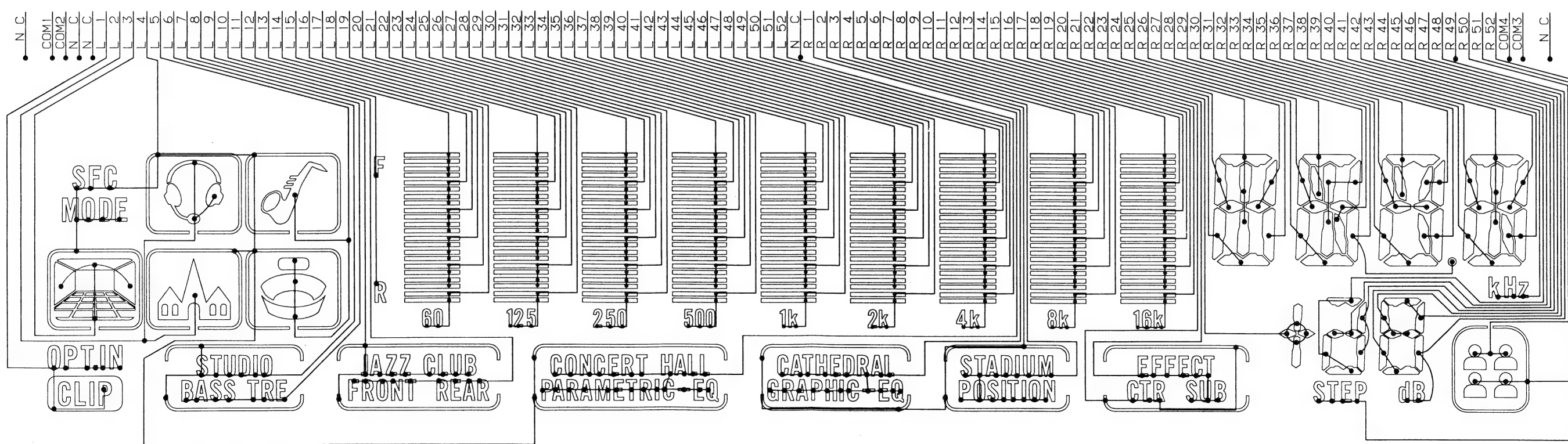
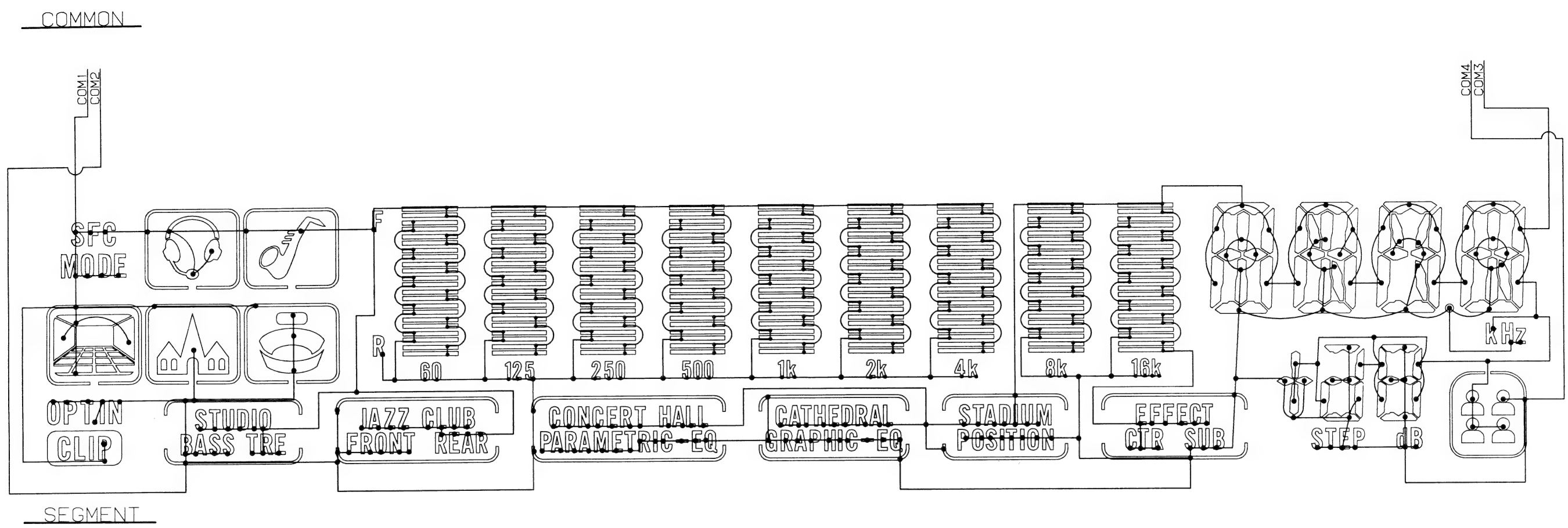
• Block Diagram



*REMOCON = REMOTE CONTROL

Fig. 13

• LCD (CAW1186)



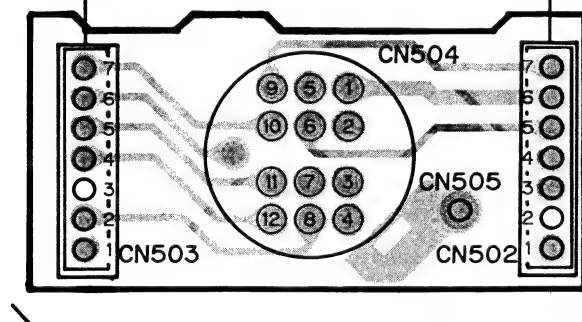
14. CONNECTION DIAGRAM(1)

• Audio Unit

AUDIO UNIT

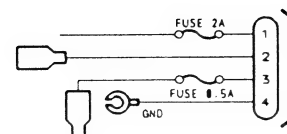
IC, Q IC451 Q503 Q509 Q453 Q454 Q501 Q505 Q163 IC552 Q161 Q63 Q159 Q552 IC155 Q151 IC252 Q251 IC156 Q154 IC56 Q553 Q556 IC154 Q55 IC5 Q156 IC152 IC153 IC151 IC51 IC52 IC54 IC1 Q56 IC6 Q351 IC53 IC351 IC253 Q1 IC352 IC3 Q352 Q353

DIN P.C. BOARD



DISPLAY UNIT

US, ES	EW
Q557	R605
D554	R618
D555	R619
R597	D556
R598	
R630	
C601	
C602	



TO DSP UNIT
CN701

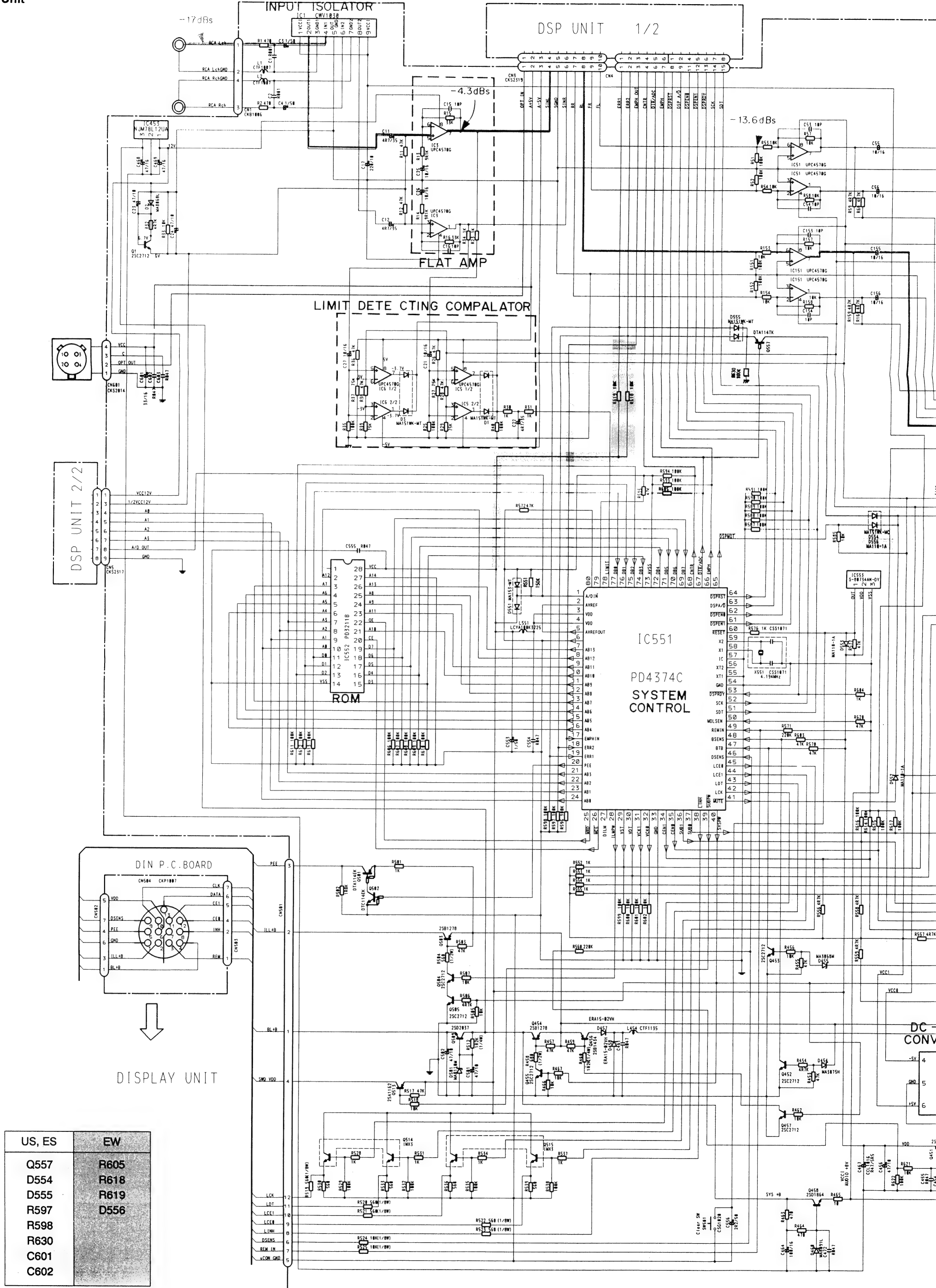
TO DSP UNIT
CN801

TO DSP UNIT
CN802,803

Fig. 14

15. SCHEMATIC CIRCUIT DIAGRAM(1)

• Audio Unit



US, ES	EW
Q557	R605
D554	R618
D555	R619
R597	D556
R598	
R630	
C601	
C602	

AUDIO P.C. BOARD

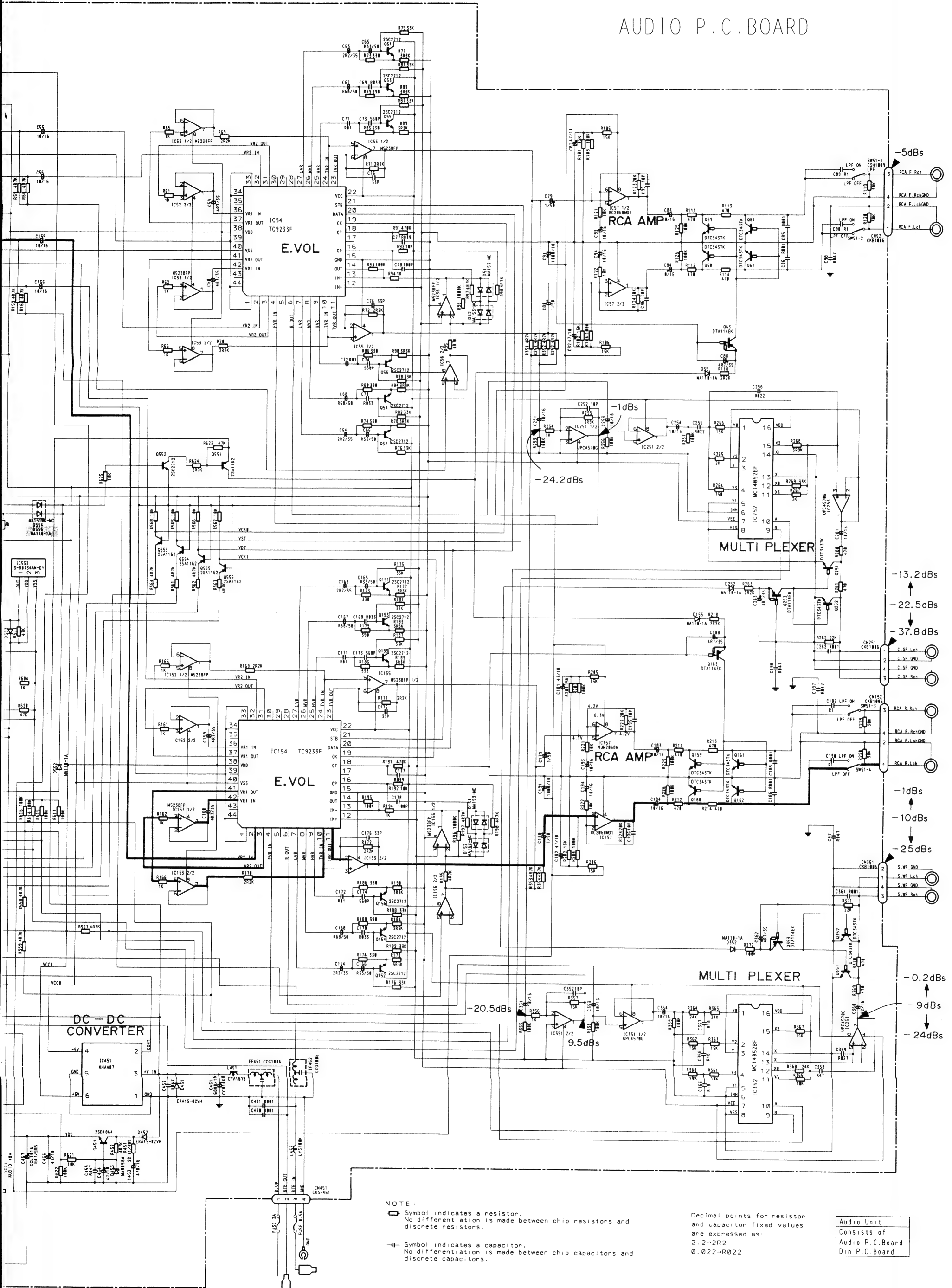


Fig. 15

16. SCHEMATIC CIRCUIT DIAGRAM(2)

• DSP Unit (DEQ-7500/US, DEQ-7550/ES)

DSP UNIT

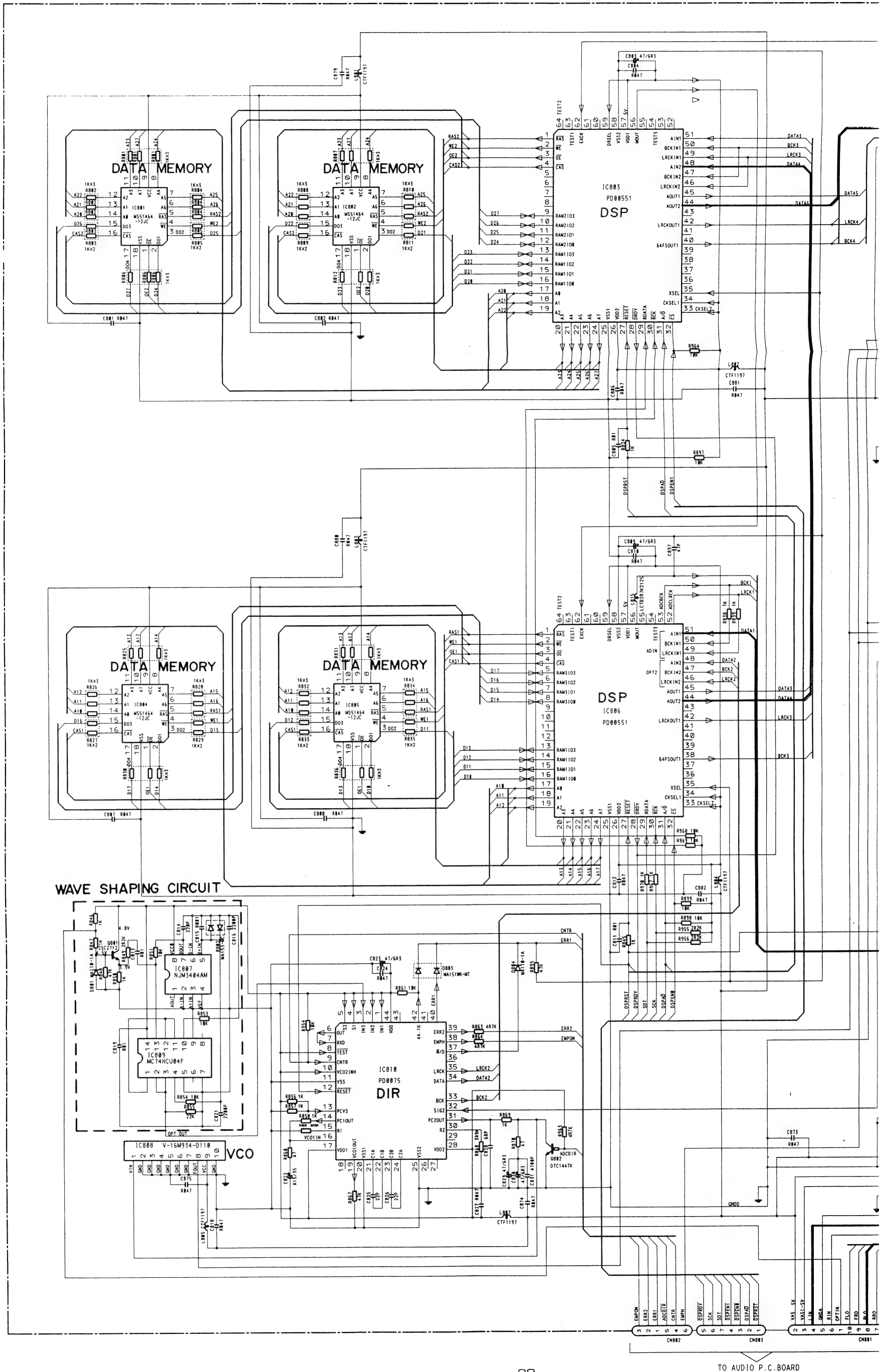




Fig. 16

17. CONNECTION DIAGRAM(2)

• DSP Unit (DEQ-7500/US, DEQ-7550/ES)

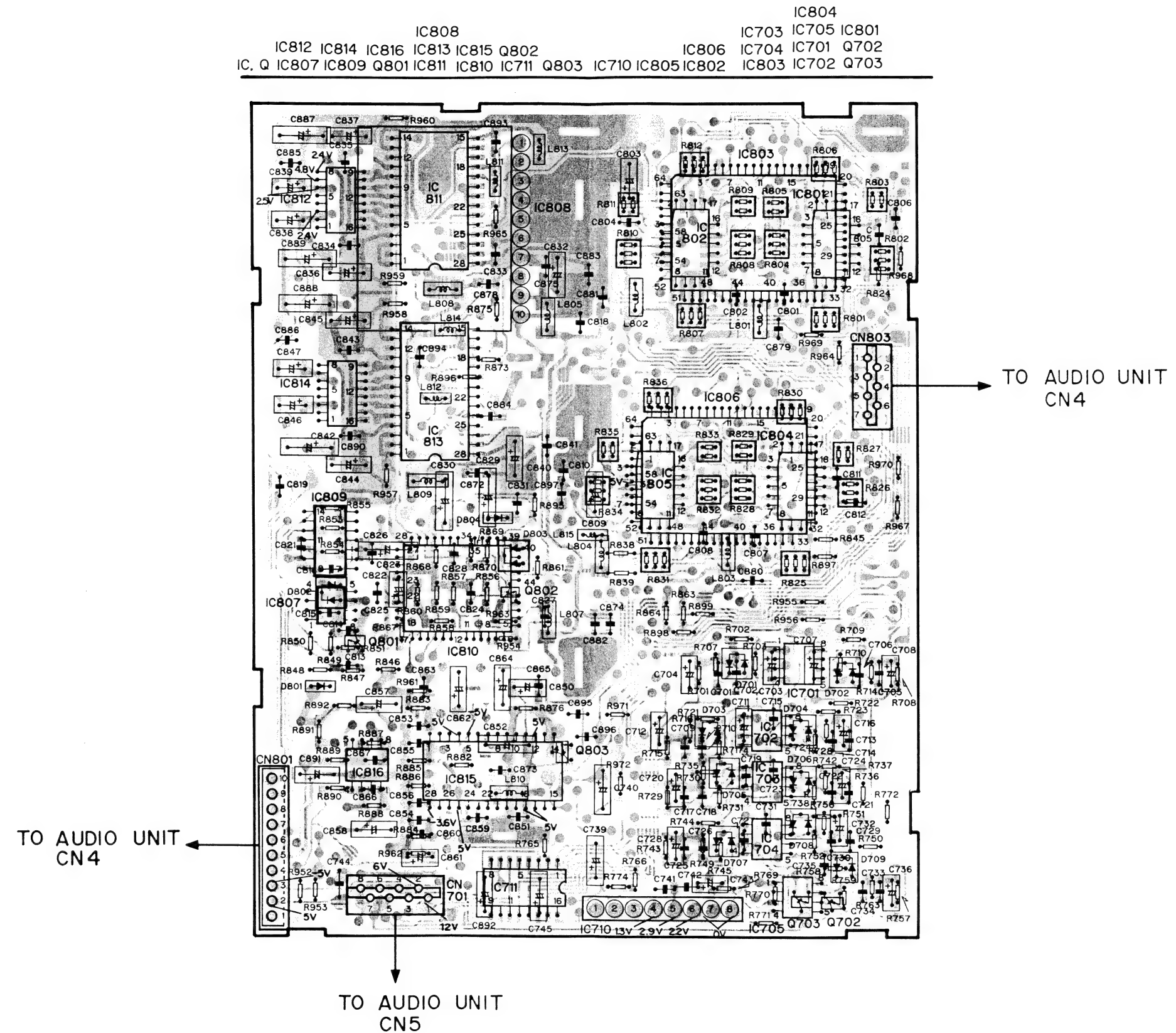


Fig. 17

18. CONNECTION DIAGRAM(3)

• DSP Unit (DEQ-7500/EW)

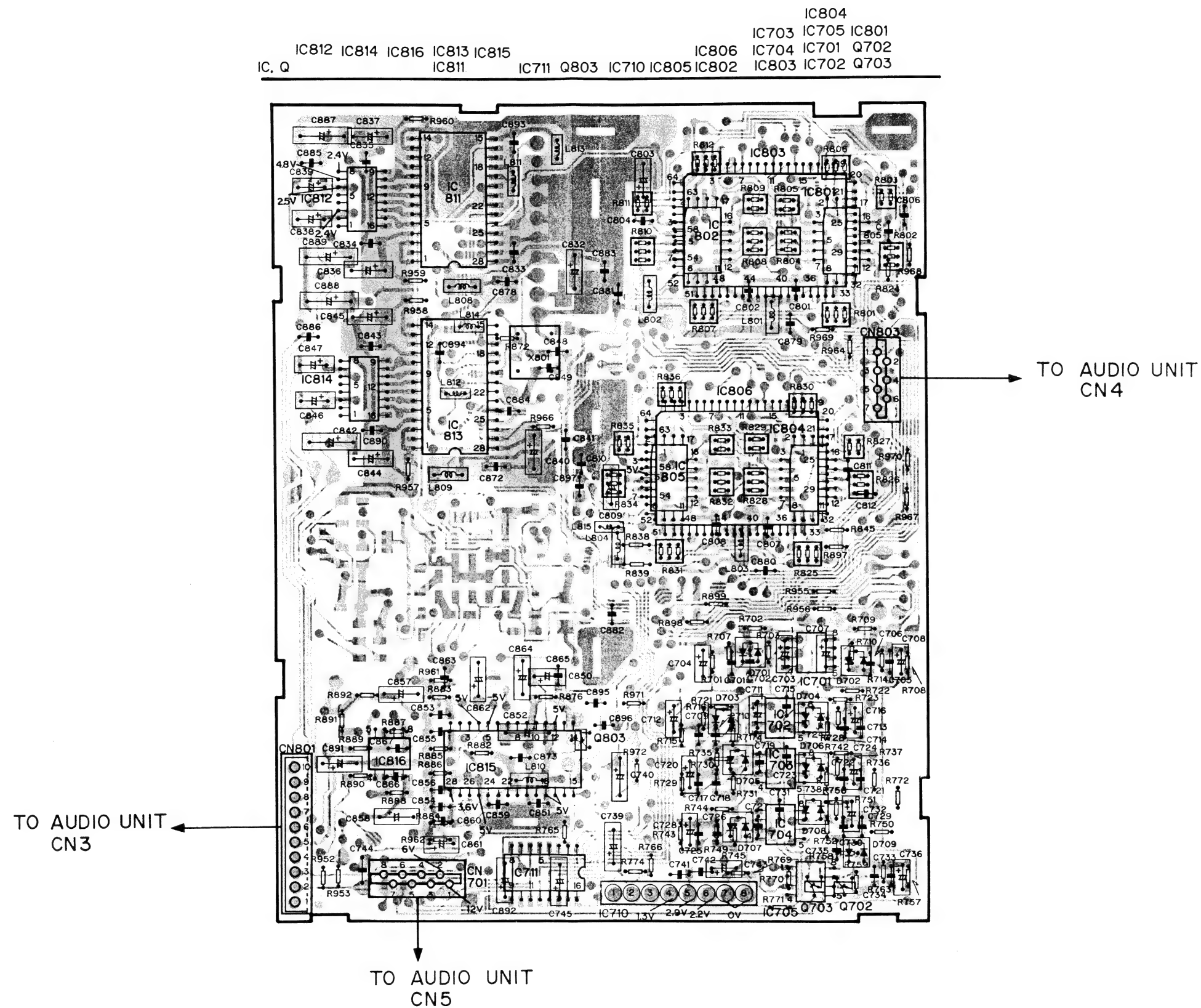
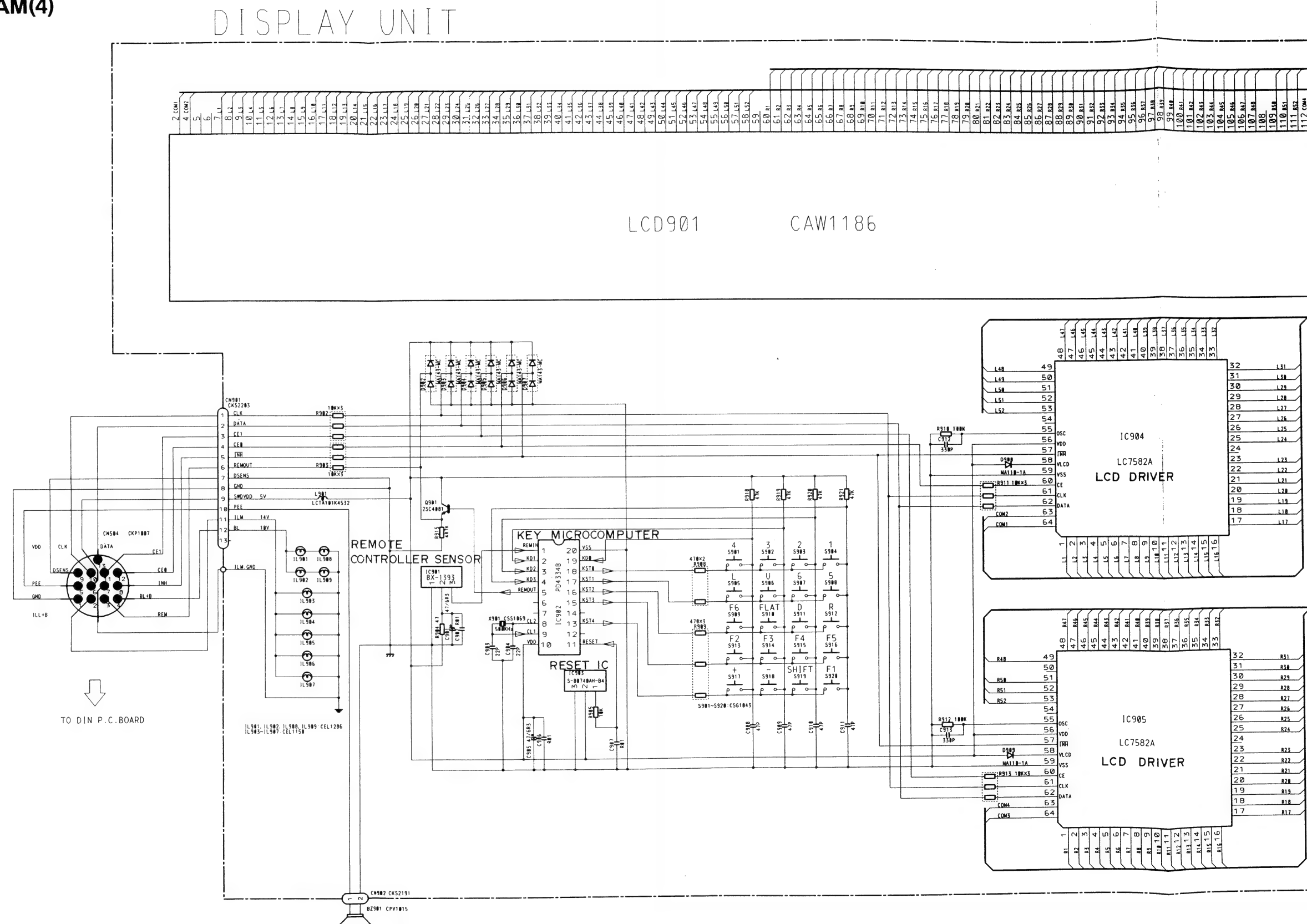


Fig. 18

20. SCHEMATIC CIRCUIT DIAGRAM(4)

• Display Unit

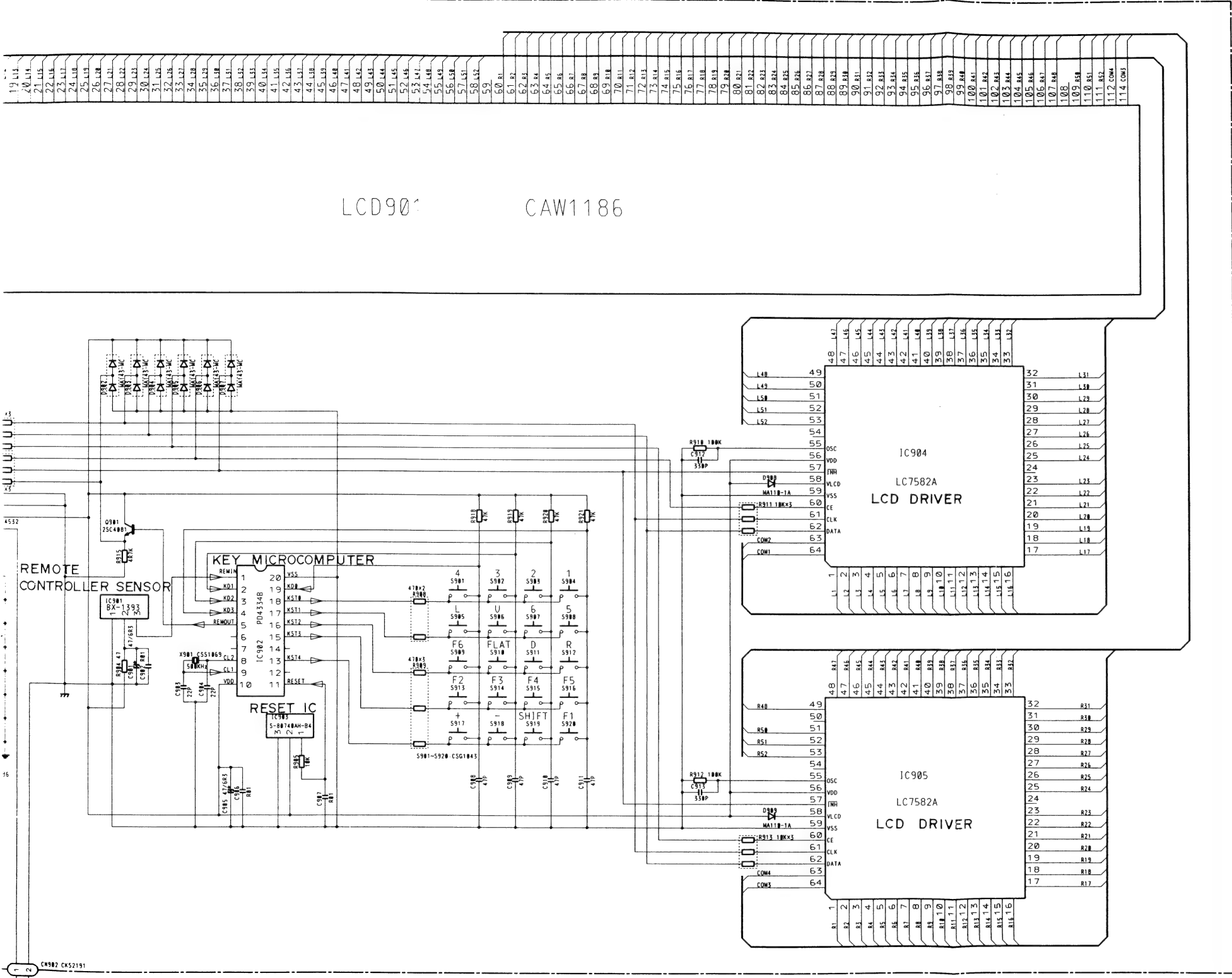


NOTE:

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- ||— Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

UNIT



NOTE:
 □ Symbol indicates a resistor.
 No differentiation is made between chip resistors and discrete resistors.
 —||— Symbol indicates a capacitor.
 No differentiation is made between chip capacitors and discrete capacitors.

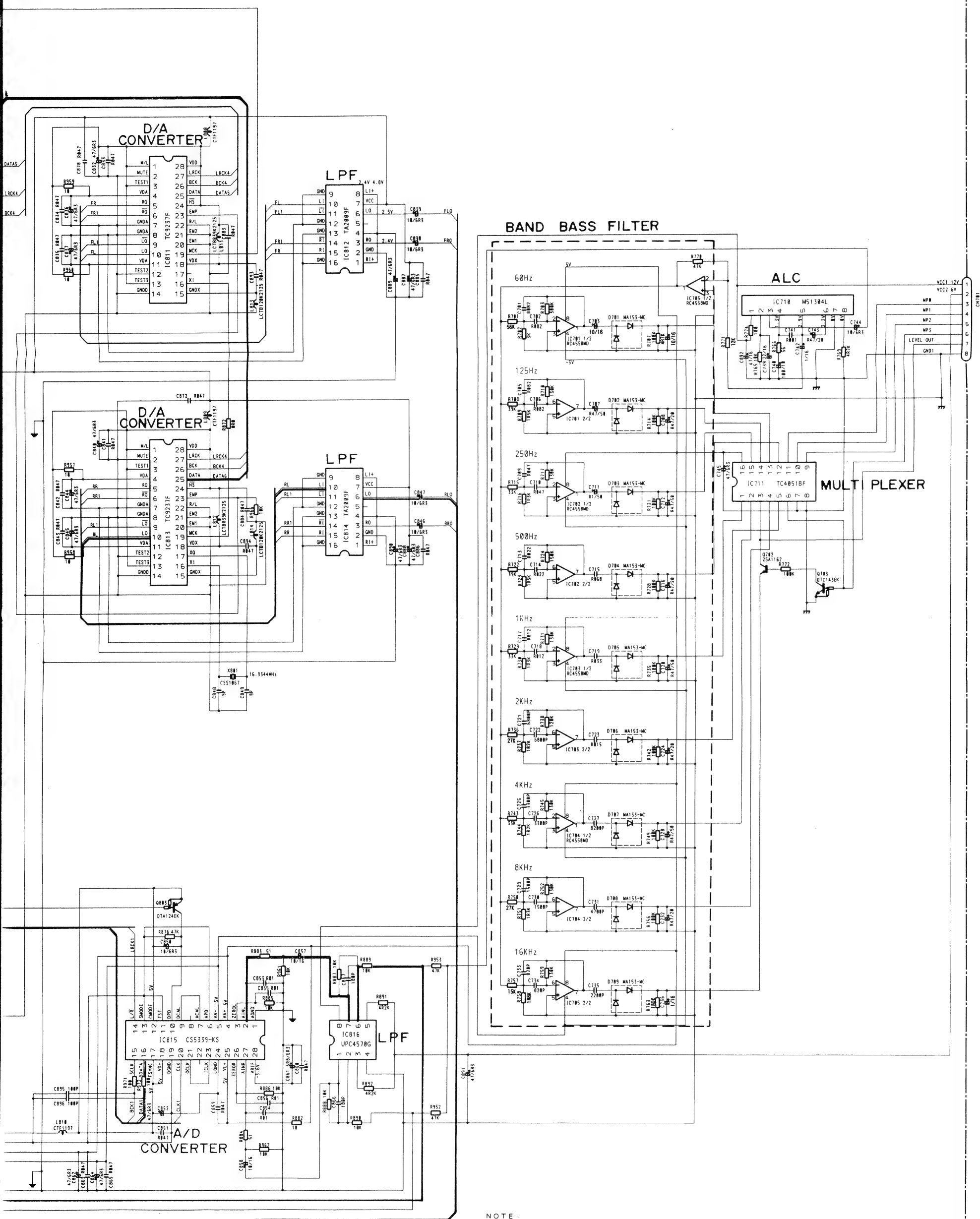
Decimal points for resistor and capacitor fixed values are expressed as:
 2.2→2R2
 0.022→R022

Fig. 20

DSP Unit (DEQ-7500/EW)



DSP UNIT



TO AUDIO P.C. BOARD

NOTE:
 □ Symbol indicates a resistor.
 No differentiation is made between chip resistors and discrete resistors.
 —||— Symbol indicates a capacitor.
 No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
 2.2→2R2
 0.022→R022

Fig. 19

21. CONNECTION DIAGRAM(4)

• Display Unit

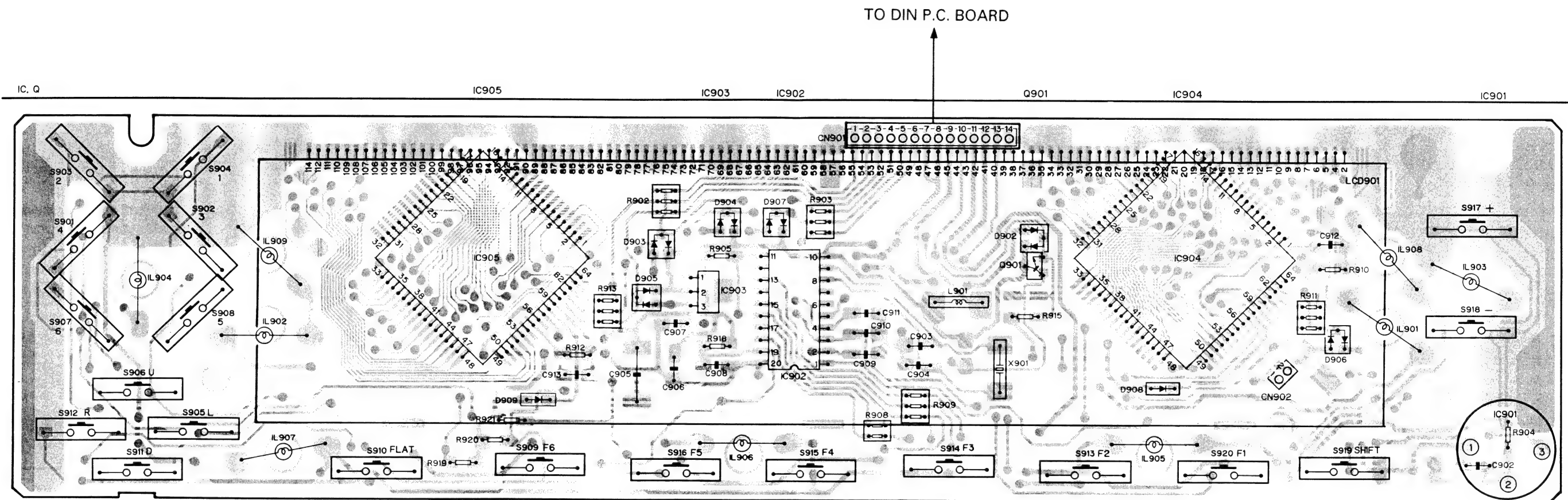


Fig. 21

22. EXPLODED VIEW

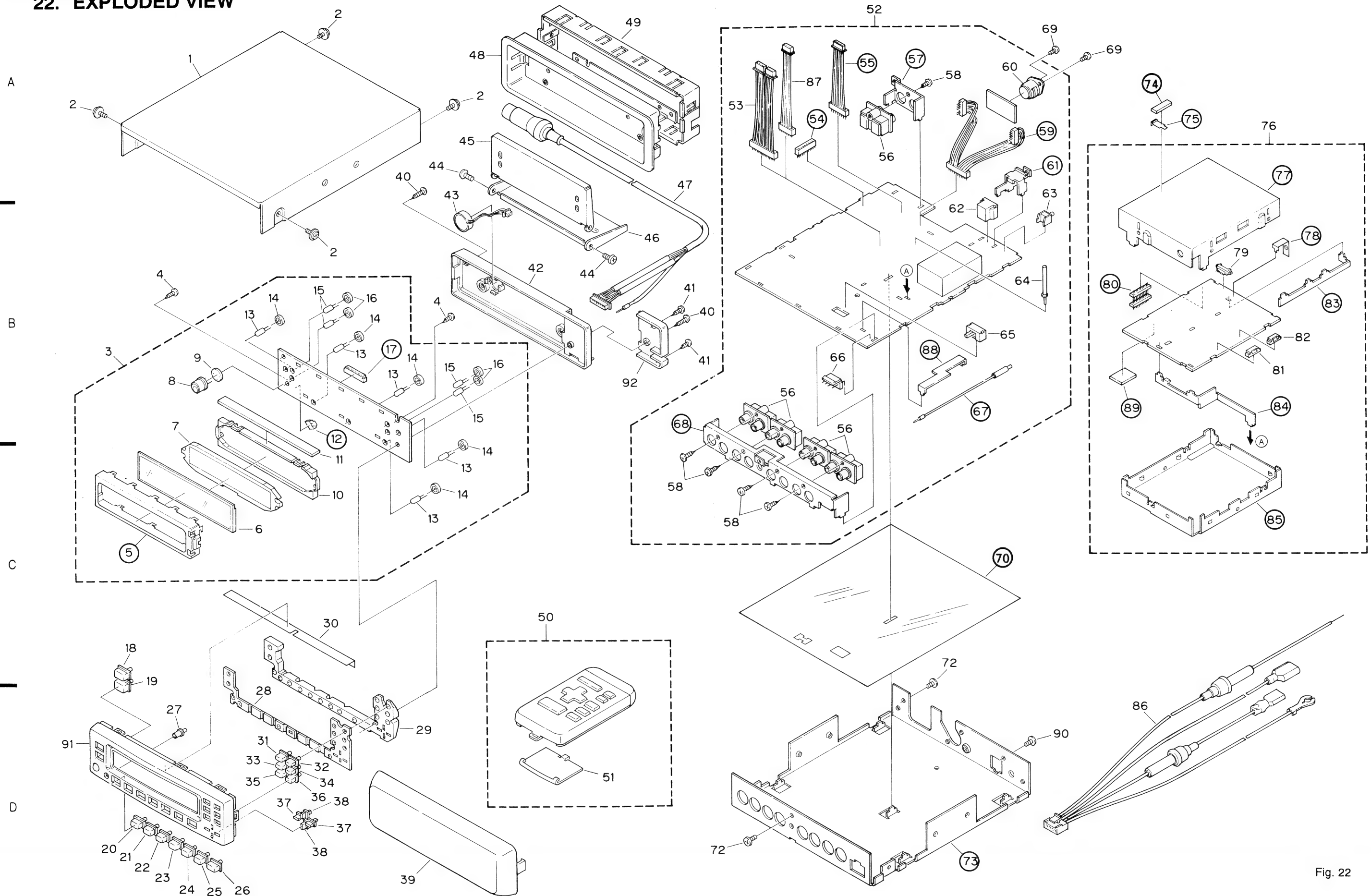


Fig. 22

• Parts List

NOTE:

- The parts marked with "●" may need long time to supply and their supply is subject to refuse as the case may be.
- Because the parts with encircled number shown on the dismantling drawing are not spare parts, we are unable to supply them in principle.

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Case (US)	CNB1627	50	Remote Control Assy (US)	CXA4874
	Case (EW)	CNB1584		Remote Control Assy (EW, ES)	CXA4690
	Case (ES)	CNB1582	51	Battery Cover	CNS2432
2	Screw	PMS30P050FZK	● 52	Audio Assy (US, ES)	CWM3143
● 3	Display Unit	CNS1236		Audio Assy (EW)	CWM3141
4	Screw	BPZ20P060FMC			
5	Holder	CNC4130	53	Cord (US, ES)	CDE367380FZK
6	LCD	CAW1186	54	Connector	CKS2319
7	Lens	CNV3047	55	Cord	CDE3685
8	IC (IC901)	BX-1393	56	Pin Jack	CKB1006
9	Spacer	CNV3064	57	Holder	CNC4139
10	Housing	CNV3048	58	Screw	PPZ30P080FZK
11	Connector	CNV3049	59	Cord	CDE3672
12	Connector	CKS2191	60	Socket	CKP1007
13	Lamp	CEL1150	61	Holder (US, ES)	CNC3316
14	Bush	CNV-724	62	Connector (US, ES)	CKS2014
15	Lamp	CEL1286	63	Switch	CSG1020
16	Bush	CNV2571	64	Clamper	CEF100540FZK
17	Connector	CKS2203	65	Switch	CSH1009
18	Button (+)	CAC2367	66	Plug	CKS-461
19	Button (-)	CAC2368	67	Cord (EW)	CDE377550FZK
20	Button (F1)	CAC2371	68	Holder	CNC4138
21	Button (F2)	CAC2372	69	Screw	BMZ26P040FZK
22	Button (F3)	CAC2373	70	Insulator	CNM3273
23	Button (F4)	CAC2374	71	
24	Button (F5)	CAC3183	72	Screw	BMZ30P050FZK
25	Button (F6)	CAC3184	73	Chassis	CNA1433
26	Button (FLAT)	CAC3185	74	Spacer	CNM1429
27	Button	CAC3178	75	Plate	CNC4425
28	Cushion	CNM3269	● 76	DSP Unit (US, ES)	CWE1269
29	Lens	CNV3050		DSP Unit (EW)	CWE1268
30	Spacer	CNM3457	77	Shield	CNC4430
31	Button (1)	CAC3186	78	Plate	CNC4426
32	Button (2)	CAC3187	79	Connector	CKS2197
33	Button (3)	CAC3188	80	Plug	CKS2816
34	Button (4)	CAC3189	81	Connector	CKS2196
35	Button (5)	CAC3190	82	Connector	CKS2195
36	Button (6)	CAC3191	83	Holder	CNC4143
37	Button	CAC2379	84	Holder	CNC4142
38	Button	CAC2380	85	Shield	CNC4431
39	Panel (EW)	CNS2464	86	Cord Assy (US, ES)	CDE3748
40	Screw	CBA1211		Cord Assy (EW)	CDE3749
41	Screw	BPZ20P050FZK	87	Cord (EW)	CDE3684
42	Cover	CNS2390	88	Holder	CNC4144
43	Buzzer	CPV1015	89	Cushion	CNM3171
44	Screw	BMZ40P060FZK	90	Screw (US, ES)	BMZ30P050FZK
45	Bracket	CNC4290	91	Grille Unit (US)	CXA4827
46	Bracket	CNC4291		Grille Unit (EW)	CXA4836
47	Cord Assy	CDE3686			

23. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/□□□□□J, RS1/□□□□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :
Unit Name : DSP Unit(DEQ-7500/UC, DEQ-7550/ES)

MISCELLANEOUS

-----Circuit Symbol & No. Part	Name-----	Part No.
IC 701 702 703 704 705		RC4558MD
IC 710		M51304L
IC 711		TC4051BF
IC 801 802 804 805		MS51464-12JC
IC 803 806		PD00551
IC 807		NJM3404AM
IC 808		V-16M934-D110
IC 809		MC74HCU04F
IC 810		PD0075
IC 811 813		TC9237F
IC 812 814		TA2009F
IC 815		CS5339-KS
IC 816		UPC4570G
Q 702		2SA1162
Q 703		DTC143EK
Q 801		2SC2712
Q 802		DTC144TK
Q 803		DTA124EK
D 701 702 703 704 705 706 707 708 709		MA153-MC
D 801 804		MA110-1A
D 802		MA153-MC
D 803		MA151WK-MT
L 801 802 803 804 Inductor		CTF1197
L 805 807 Inductor		CTF1197
L 808 809 Inductor		CTF1197
L 810 Inductor		CTF1197
L 811 812 Inductor		LCTBR39K2125
L 813 Inductor		LCTB120K2125
L 814 Inductor		LCTB120K2125
L 815 Inductor		LCTB2R7K2125

RESISTORS

R 701	RS1/10S563J
R 702	RS1/10S302J
R 703	RS1/10S304J
R 707	RS1/10S472J
R 708	RS1/10S393J
R 709	RS1/10S152J
R 710	RS1/10S154J
R 714 721 728 735 742 749 756	RS1/10S104J
R 715 729 743	RS1/10S333J
R 716 730 751	RS1/10S132J
R 717 731 745 752 759	RS1/10S134J
R 722	RS1/10S393J
R 723	RS1/10S152J
R 724	RS1/10S154J
R 736 750	RS1/10S273J

-----Circuit Symbol & No. Part	Name-----	Part No.
R 737		RS1/10S122J
R 738		RS1/10S124J
R 744		RS1/10S122J
R 757		RS1/10S153J
R 758		RS1/10S182J
R 763		RS1/10S184J
R 765		RS1/10S103J
R 766		RS1/10S560J
R 769		RS1/10S472J
R 770		RS1/10S473J
R 771		RS1/10S123J
R 772		RS1/10S104J
R 774 972		RS1/10S101J
R 801 802 804 806 807 808 810 812 825 826		RA3C102J
R 803 805 809 811 827 829 833 835		RA2CQ102J
R 824 845		RS1/10S102J
R 828 830 831 832 834 836		RA3C102J
R 838 839		RS1/8S102J
R 846 847 850		RS1/10S102J
R 849		RS1/10S222J
R 851 853 854 954		RS1/10S103J
R 855		RS1/10S223J
R 856 857 858 869		RS1/10S102J
R 859		RS1/10S682J
R 860 870		RS1/10S470J
R 861		RS1/10S103J
R 863 864 963		RS1/10S472J
R 867 895		RS1/10S473J
R 868		RS1/10S392J
R 873 896		RS1/10S0R0J
R 875		RS1/10S0R0J
R 876		RS1/10S473J
R 882		RS1/10S100J
R 883 884		RS1/10S510J
R 885 886		RS1/10S103J
R 887 888		RS1/10S103J
R 889 890		RS1/10S103J
R 891 892		RS1/10S472J
R 897 898 899 964		RS1/10S103J
R 952 953		RS1/10S473J
R 955 956		RS1/10S222J
R 957 958 959 960		RS1/10S100J
R 961 962		RS1/10S103J
R 965		RS1/10S103J
R 967 970		RS1/10S102J
R 968 969		RS1/10S103J
R 971		RS1/10S101J
CAPACITORS		
C 701 702 705 706		CKSYB823K50
C 703 704		CEV100M16
C 707 712 720 728		CEVR47M50
C 708 716 724 732		CSZSR47M20
C 709 710		CKSQYB473K50

47

-----Circuit Symbol & No. Part Name----- Part No.

CAPACITORS

C 701 702 705 706 CKSYB823K50
C 703 704 CEV100M16
C 707 712 720 728 CEVR47M50
C 708 716 724 732 736 CSZSR47M20
C 709 710 CKSQYB473K50

C 711 CEV0R1M50
C 713 714 CKSQYB223K50
C 715 CKSQYB683K25
C 717 718 CKSQYB123K50
C 719 CKSQYB333K50

C 721 722 CKSQYB682K50
C 723 CKSQYB153K50
C 725 726 CKSQYB332K50
C 727 CKSQYB822K50
C 729 730 CKSQYB152K50

C 731 CKSQYB472K50
C 733 734 CKSQYB821K50
C 735 CKSQYB222K50
C 736 CSZS010M16
C 739 CEV220M16

C 740 CEV101M10
C 741 CKSQYB102K50
C 742 CSZS010M16
C 743 CSZSR47M20
C 744 CSZSR100M6R3

C 745 CEV470M6R3
C 801 802 807 808 810 881 882 CKSQYB473K50
C 803 809 CEV470M6R3
C 804 806 812 879 880 CKSQYB473K50
C 805 811 CKSQYB103K50

C 832 836 837 840 844 845 CEV470M6R3
C 833 834 841 842 843 872 878 883 886 893 CKSQYB473K50
C 835 884 885 894 CKSQYB473K50
C 838 839 846 847 CSZSR100M6R3
C 848 849 CCSQCH090D50

C 850 CSZSR100M6R3
C 851 859 873 CKSQYB473K50
C 852 CSZST470M6R3
C 853 854 855 856 CKSQYB103K50
C 857 858 CEA100M16

C 860 863 865 CKSQYB473K50
C 861 CSZSR6R8M6R3
C 862 864 891 CEV470M6R3
C 866 867 CCSQCH181J50
C 887 888 889 890 CSZST470M6R3

C 892 CEV470M16
C 895 896 CCSQCH101J50
C 897 CCSQCH470J50

Unit Number :
Unit Name : Audio P.C. Board

MISCELLANEOUS

IC 1 CWV1030
IC 3 5 6 51 151 251 253 351 UPC4570G
IC 52 53 55 56 152 153 155 156 M5238FP
IC 54 154 TC9233F
IC 57 157 RC2068MD1

IC 252 352 MC14052BF
IC 451 KHAA07
IC 453 NJM78L12UA
IC 551 PD4374C
IC 552 PD3211B

-----Circuit Symbol & No. Part Name----- Part No.

IC 553 S-80734AN-DY
Q 1 51 52 53 54 151 152 153 154 505 2SC2712
Q 55 56 155 156 452 453 455 457 2SC2712
Q 59 61 159 161 DTC343TK
Q 60 62 160 162 251 252 351 352 DTC343TK

Q 63 163 501 DTA114EK
Q 253 353 DTA114EK
Q 451 458 2SD1864
Q 454 503 2SB1278
Q 456 2SB1434

Q 502 DTC114EK
Q 504 2SC2712
Q 509 2SD2037
Q 513 553 554 555 556 2SA1162
Q 514 515 IMX3

Q 551 2SA1162
Q 552 2SC2712
Q 557(US,ES) DTA114TK
D 1 3 MA151WK-MT
D 2 MA8068L

D 51 52 151 152 MA153-MC
D 55 155 252 352 552 553 MA110-1A
D 451 452 457 458 ERA15-02VH
D 453 MA8056M
D 454 MA3075H

D 455 MA3068M
D 460 MA8091L
D 501 MA8110M
D 551 MA153-MC
D 554 555(US,ES) MA151WK-MT

D 556 (EW) MA110-1A
L 1 2 Ferri-Inductor CTF1007
L 451 CTH1078
L 454 Coil CTF1135
L 455 551 LCYA100K3225

X 551 Crystal Resonator CSS1071
SW 51 Switch CSH1009
SW501 Switch CSG1020
EF 451 452 EMIFilter CCG1006

RESISTORS

R 1 2 111 112 113 114 211 212 213 214 RS1/10S471J
R 11 12 26 36 38 453 455 457 459 503 RS1/10S473J
R 13 14 RS1/10S912J
R 15 16 75 76 81 82 87 88 175 176 RS1/10S333J
R 23 34 62 66 166 RS1/10S102J

R 25 35 51 52 93 103 151 152 193 253 RS1/10S104J
R 27 29 37 39 RS1/10S753J
R 28 572 577 595 620 623 RS1/10S473J
R 30 31 61 65 94 161 162 165 194 254 RS1/10S102J
R 32 59 60 95 159 160 195 251 252 452 RS1/10S472J

R 33 53 54 57 58 92 122 153 154 157 RS1/10S103J
R 40 104 203 204 594 596 RS1/10S104J
R 69 169 70 170 RS1/10S222J
R 71 72 118 171 172 218 263 RS1/10S222J
R 73 74 85 86 173 174 185 186 RS1/10S331J

R 77 78 89 90 177 178 183 184 189 190 RS1/10S332J
R 79 80 179 180 RS1/10S391J
R 83 84 RS1/10S332J
R 91 191 RS1/10S474J
R 96 196 RS1/10S105J

R 97 98 197 198 351 352 353 354 561 562 RS1/10S472J
R 101 102 105 106 201 202 205 206 266 RS1/10S153J
R 119 120 219 220 RS1/10S303J
R 121 221 361 366 518 565 566 567 568 625 RS1/10S103J
R 123 223 RS1/10S203J

-----Circuit	Symbol & No.	Part	Name-----	Part No.
R 124	224			RS1/10S203J
R 125	126	225	226	RS1/10S104J
R 158	192	222	360 456 462	RS1/10S103J
R 181	182	187	188 269	RS1/10S333J
R 255				RS1/10S392J
R 256	257	355	358 359 529 532 535 538 587	RS1/10S104J
R 260	261	369	370 463 464	RS1/10S471J
R 262	371			RS1/10S223J
R 264				RS1/10S751J
R 265	267			RS1/10S202J
R 268				RS1/10S392J
R 356	501	528	531 534 537 552 553 554 555	RS1/10S102J
R 357				RS1/10S153J
R 362				RS1/10S153J
R 363	367			RS1/10S153J
R 364	365	368		RS1/10S243J
R 372				RS1/10S104J
R 451				RS1/4S220J
R 454	506	556	557 558 559	RS1/10S472J
R 458				RS1/2S681J
R 460	512			RS1/4S122J
R 465				RS1/10S100J
R 466	467	507	585	RS1/10S103J
R 502				RS1/10S182J
R 504				RS1/2S561J
R 505	621			RS1/10S103J
R 517	570	603		RS1/10S473J
R 519	520	521	522 523	RS1/8S561J
R 524	525			RS1/8S103J
R 530	533	536	539	RS1/10S561J
R 551				RS1/10S154J
R 560	571			RS1/10S224J
R 563	564			RS1/10S472J
R 576	604			RS1/10S102J
R 588	589	590	591 593 599 600 601 602	RS1/10S104J
R 597	598(US,ES)			RS1/10S104J
R 605(EW)				RS1/10S104J
R 606	607	608	609 610 611 612 613	RS1/10S104J
R 614	615	616	617 622	RS1/10S103J
R 618	619(EW)			RS1/10S103J
R 624				RS1/10S272J
R 630(US,ES)				RD1/4PS104JL
CAPACITORS				
C 1	2	185	262 361 470 471	CKSQYB102K50
C 3	4			CEAS010M50
C 11	12	22	88 188 263 362	CEA4R7M35LS
C 15	16	53	54 95 153 154 195 252 352	CCSQCH100D50
C 17				CEAS221M10
C 21	25	26	27 83 84 93 94 183 184	CEA100M16LS2
C 23	24	81	82 181 182	CEA470M10LS
C 55	56	155	156 251 253 254 261 351 353	CEALNP100M16
C 59	60	159	160	CEALNP4R7M35
C 63	64	163	164	CEALNP2R2M35
C 65	66	165	166	CEALNPR33M50
C 67	68	167	168	CEALNPR68M50
C 69	70	169	170	CKSQYB333K25
C 71	72	171	172	CKSQYB103K25
C 73	74	173	174	CKSQYB561K50
C 75	76	175	176	CCSQCH330J50
C 77	177			CKSQYB393K25
C 78	178			CCSQCH101J50
C 79	80	179	180	CEA010M50LS2
C 85	86	186		CKSQYB102K50

-----Circuit	Symbol & No.	Part	Name-----	Part No.
C 89	90	189	190	CFTNA104J50
C 91	191			CEA102M10L2
C 96	196			CCSQCH100D50
C 97	98	197	452 455 461 554 555	CKSQYB473K25
C 193	194			CEA100M16LS2
C 198	472			CKSQYB473K25
C 255	256			CKSQYB223K25
C 354				CEALNP100M16
C 355	356	357		CFTNA184J50
C 358				CFTNA474J50
C 359				CKSQYB273K25
C 360				CEALNP220M16
C 451			6800 μ /16V	OCH1132
C 453				CEAS471M16
C 454	456	501	502	CEAS470M10
C 464				CEAS101M16
C 467			0.47 μ /5.5V	CCL1016
C 468	469			CEAS470M16
C 553				CSZS010M16
C 556				CEA2R2M50LS2
C 601(US,ES)				CEAS330M16
C 602	603(US,ES)			CKSQYB473K25
Unit Number :				
Unit Name : Display Unit				
MISCELLANEOUS				
IC 901				BX-1393
IC 902				PD4334B
IC 903				S-80740AH-B4
IC 904	905			LC7582A
Q 901				2SC4081
D 902	903	904	905 906 907	MA143-MC
D 908	909			MA110-1A
L 901				LCTA101K4532
X 901				CSS1069
S 901	902	903	904 905	CSG1043
				Switch
S 906	907	908	909 910	Switch
S 911	912	913	914 915	Switch
S 916	917	918	919 920	Switch
IL 901	902	908	909	Lamp
IL 903	904	905	906 907	Lamp
BZ 901				Buzzer
LCD901				LCD
RESISTORS				
R 902	903	911	913	RA30103J
R 904				RS1/10S470J
R 905				RS1/10S103J
R 908				RA200471J
R 909				RA30171J
R 910	912			RS1/10S104J
R 915				RS1/10S472J
R 918				RS1/10S473J
R 919	920	921		RS1/10S473J
CAPACITORS				
C 901	905			CSZS1470M6R3
C 902	906	907		CKSQYB103K50
C 903	904			CCSQCH221J50
C 908	909	910	911	CKSQYB471K50
C 912	913			CCSQCH331J50

24. PACKING METHOD

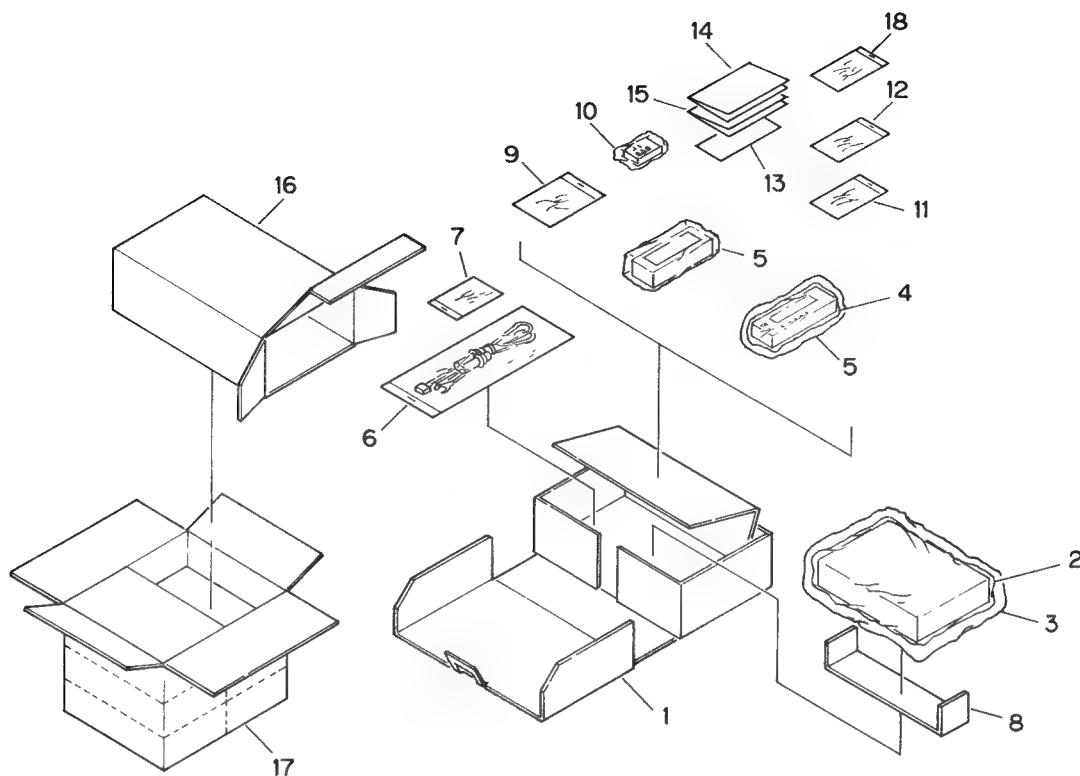


Fig. 23

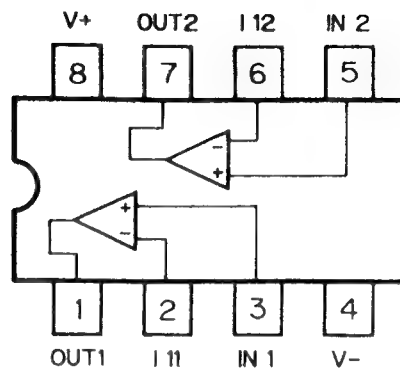
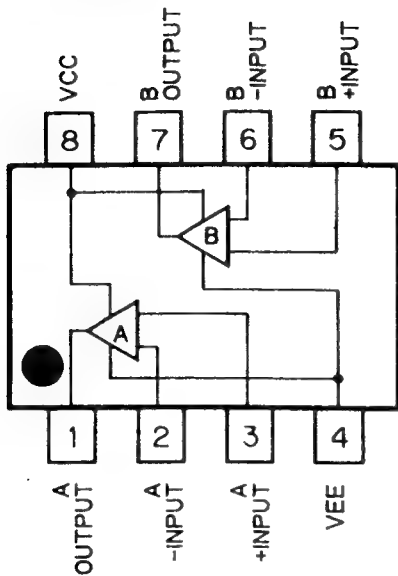
Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Carton	CHG2217	11	Accessory Assy	CEA1473
2	Cover	CHG1086	* 11-1	Polyethylene Bag	CEG-127
3	Air Cushioned Bag	CEG1117	* 11-2	Battery	CEX1006
4	Cover	CHG1064	11-3	Fastener (Rough)	CNM3249
5	Air Cushioned Bag	CEG1118	11-4	Fastener (Soft)	CNM3250
6	Cord Assy (US, ES)	CDE3748	12	Accessory Assy (US, ES)	CEA1718
	Cord Assy (EW)	CDE3749	12-1	Screw (×4)	BMZ26P040FZK
* 7	Accessory Assy	CEA-782	12-2	Screw (×2)	BMZ30P060FZK
7-1	Screw (×4)	BNC50P160PMC	12-3	Screw (×2)	BMZ40P060FZK
7-2	Split Pin (×4)	B20-223	12-4	Screw (×2)	RCW41P160FZK
7-3	Screw (×5)	CBA-101	12-5	Spring	CBH-865
7-4	Screw (×4)	CBA-102	12-6	Polyethylene Bag	CEG-127
7-5	Cord	CDE1289	* 13	Card (US, ES)	ARY1048
* 7-6	Polyethylene Bag	E36-613	* Card (EW)	ARY-062	
7-7	Nut (×4)	NF50PMC	14	Owner's Manual (US)	CRB1248
7-8	Washer (×4)	WA45F130M080		Owner's Manual (EW)	CRD1593
* 8	Mounting Bracket	CNB-720		Owner's Manual (ES)	CRD1594
9	Air Cushioned Bag	CEG1052	15	Owner's Manual (EW)	CRD1603
9-1	Bracket	CNC4290	16	Carton (US)	CHG2220
9-2	Bracket	CNC4291		Carton (EW)	CHG2218
9-3	Fastener (×2) (Rough)	CNM1716		Carton (ES)	CHG2219
9-4	Fastener (×2) (Soft)	CNM1717	17	Contain Box (US)	CHL2220
9-5	Fastener (×2)	CNM-667	18	Screw Assy (EW)	CEA1717
10	Remote Control Assy (US)	CXA4874	18-1	Screw (×2)	BMZ30P060FZK
	Remote Control Assy (EW, ES)	CXA4690	18-2	Screw (×2)	BMZ40P060FZK
			18-3	Screw (×2)	RCW41P160FZK

Part No.	Language
CRB1248	English
CRD1593	English, French, German, Spanish
CRD1594	English, French, Spanish, Arabic
CRD1603	Swedish, Norwegian, Italian, Finnish, Dutch

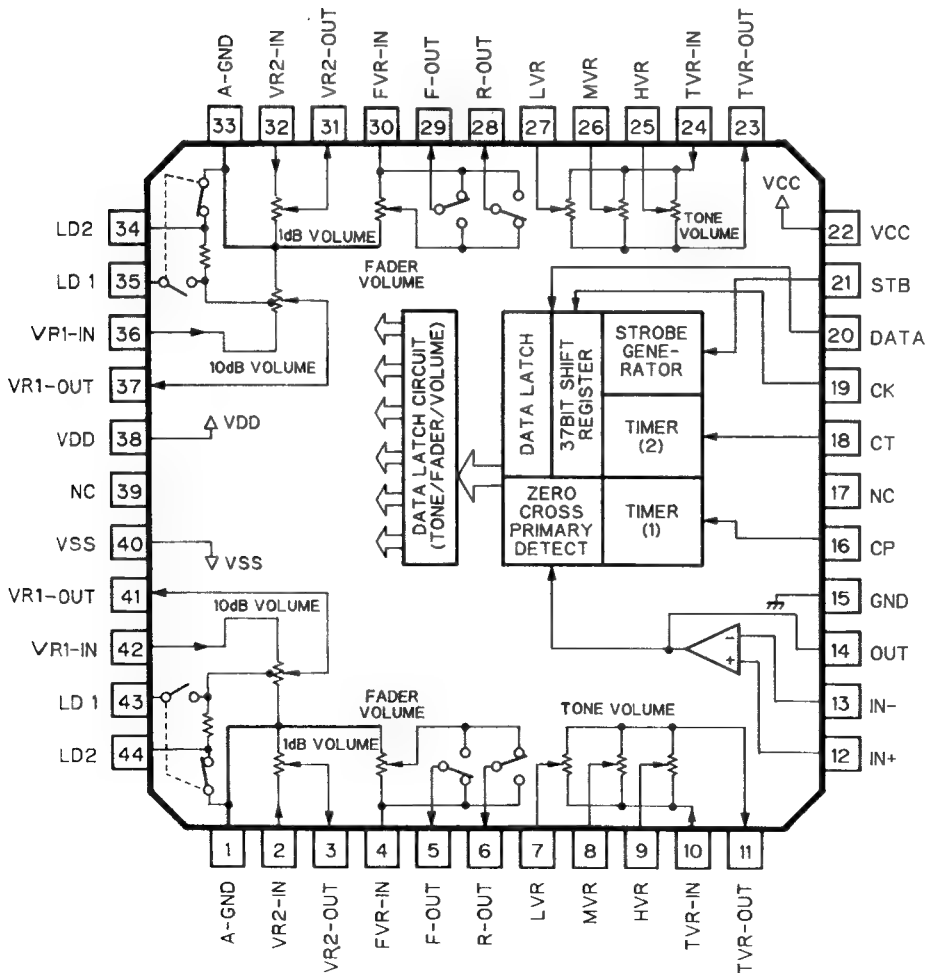
• ICs

UPC4570G, M5238FP

RC2068MD1, RC4558MD



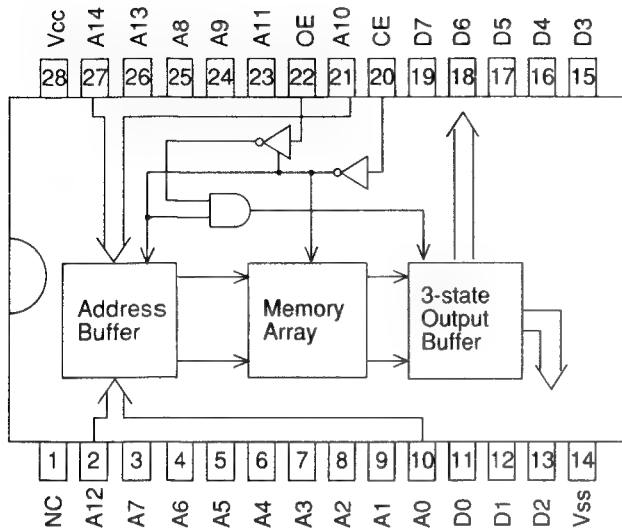
TC9233F



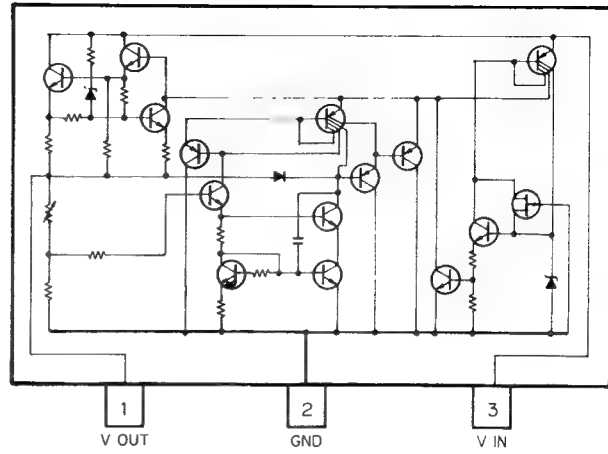
*PD3211B

IC's marked by * are MOS type.

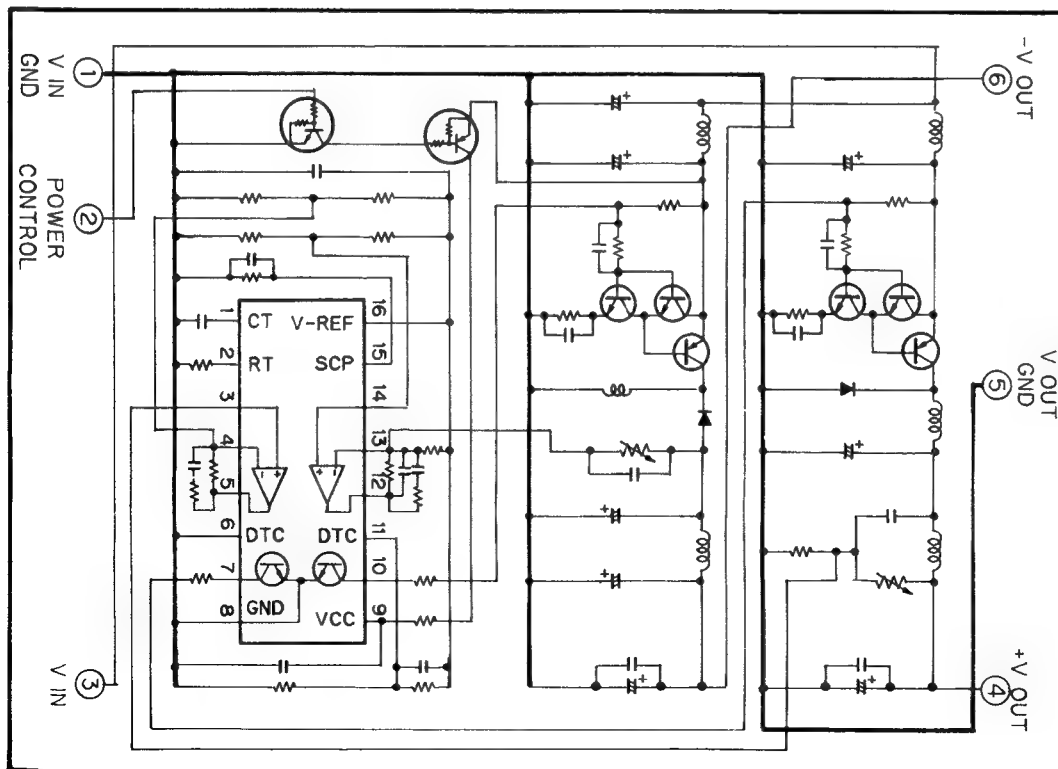
Be careful in handling them because they are very liable to be damaged by electrostatic induction.



NJM78L12UA

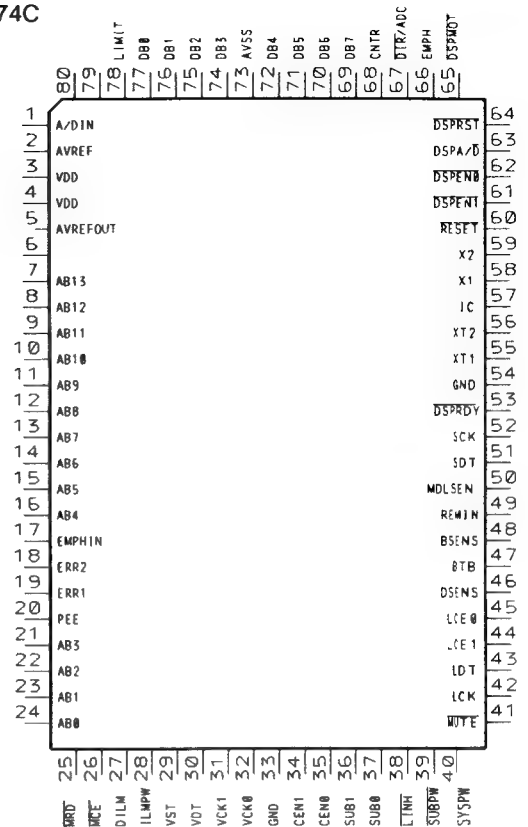
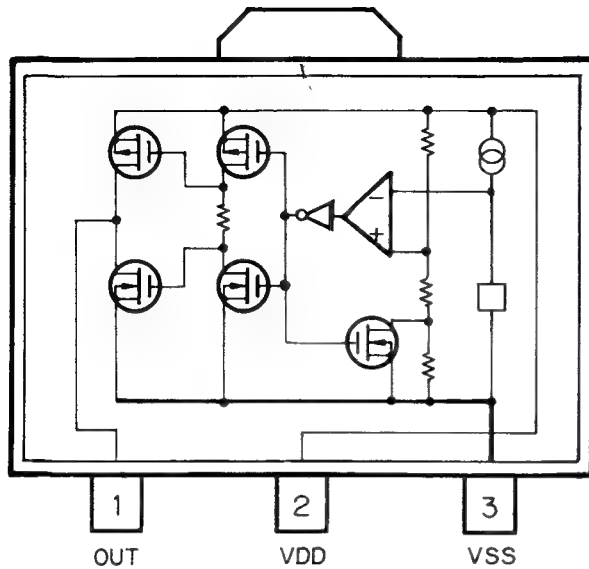


KHAA07



S-80734AN-DY,
S-80740AH-B4

*PD4374C



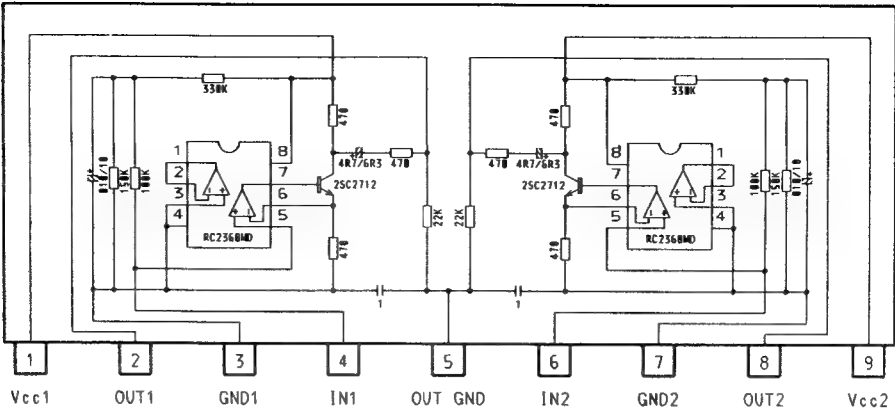
• Pin Functions (PD4374C)

Pin	Pin name	I/O	Output Format	Function
1	A/DIN	A/D		A/D Converter input pin
2	AVREF			A/D converter reference voltage
3	VDD			Power supply
4	VDD			
5	AVREFOUT	output	C	A/D converter reference voltage output
6	NC	output	C	Not used
7 16	AB13 AB4	output	C	Memory address output
17	EMPHIN	input		Emphasis input
18	ERR2	input		Error 2 input
19	ERR1	input		Error 1 input
20	PEE	output	C	Beep tone output
21 24	AB3 AB0	output	C	Memory address output, A/D switching output
25	FRS	output	C	Memory read strobe output
26	FCE	output	C	Memory chip select output
27	DILM	output	C	Dial illumination selector output
28	ILUPW	output	C	Illumination power control output
29	VST	output	M1	E-UOL strobe
30	VDT	output	M1	E-UOL date
31	VCK1	output	M1	E-UOL clock (Rear)
32	VCK2	output	M1	E-UOL clock (Front)
33	GND			GND
34	CEN1	output	C	Center speaker fo control
35	CEN2	output	C	Center speaker fo control

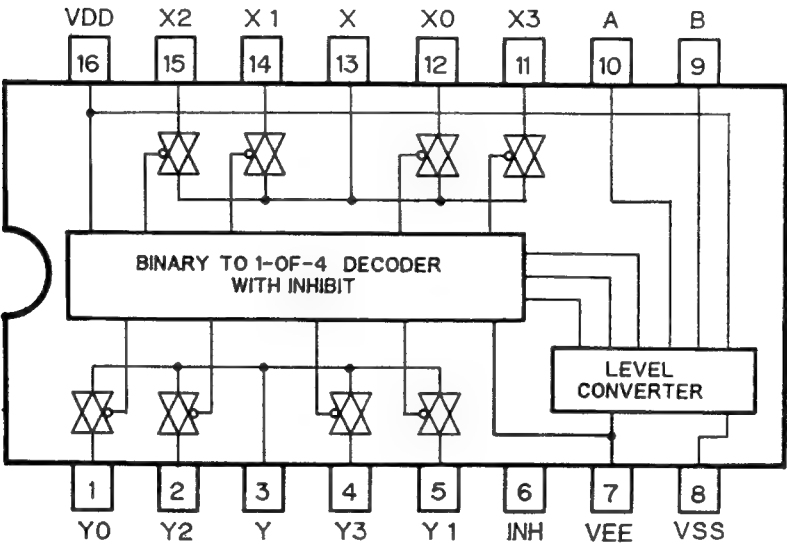
Pin	Pin name	I/O	Output Format	Function
36	SUB1	output	C	Sub woofer fo control
37	SUB0	output	C	Sub woofer fo control
38	LIN1	output	C	LCD control inhibit output
39	SUBPW	output	C	Control output for grille power supply
40	SYSPW	output	C	System power supply control
41	MUTE	output	C	Mute output
42	LOK	output	NM	LCD driver clock output
43	LDT	output	NM	LCD driver data output
44	LCE1	output	NM	LCD control chip select output
45	LCE0	output	NM	LCD control chip select output
46	DSSENS	input		Grille,connector remove/replace sensor input
47	BTB	input		BTB input
48	BSENS	input		Back up power sense
49	REHIN	input		Remote control input
50	MDLSEN	input		Destination selection input
51	SDT	output	N	DSP serial data
52	SCK	output	N	DSP serial clock
53	DSPRDY	input		DSP ready input
54	GND			GND
55	XT1			Connector to ground
56	XT2			Open
57	IC			Connector to ground
58	X1			Crystal oscillating element connection pin
59	X0			
60	RESET			Reset input
61	DSPEN1	output	NM	DSP chip enable output
62	DSPEN0	output	NM	DSP chip enable output
63	DSPRD	output	NM	DSP address/data switching output
64	DSPRST	output	NM	DSP reset output
65	DSPMUT	output	NM	DSP mute output
66	EMPH	output	NM	Emphasis output
67	DIR/ADC	output	NM	DIR/ADC switching output
68	CNTR	output	NM	DIR count clock
69 72	DB7 DB4	input		Memory data input
73	AUSS			Ground voltage of A/D convertor
74 77	DB3 DB0	input		Memory data input
78	LIMIT	A/D		Audio signal, Over Input detector
79 88	NC	A/D		Not used

Output Format	Meaning
C	C-MOS
N	N channel open drain
NM	Middle resistivity N channel open drain

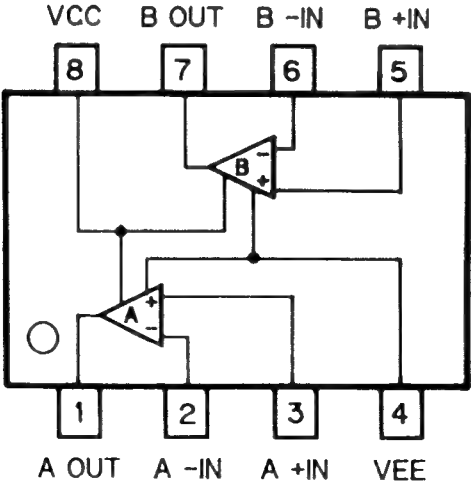
CWV1030



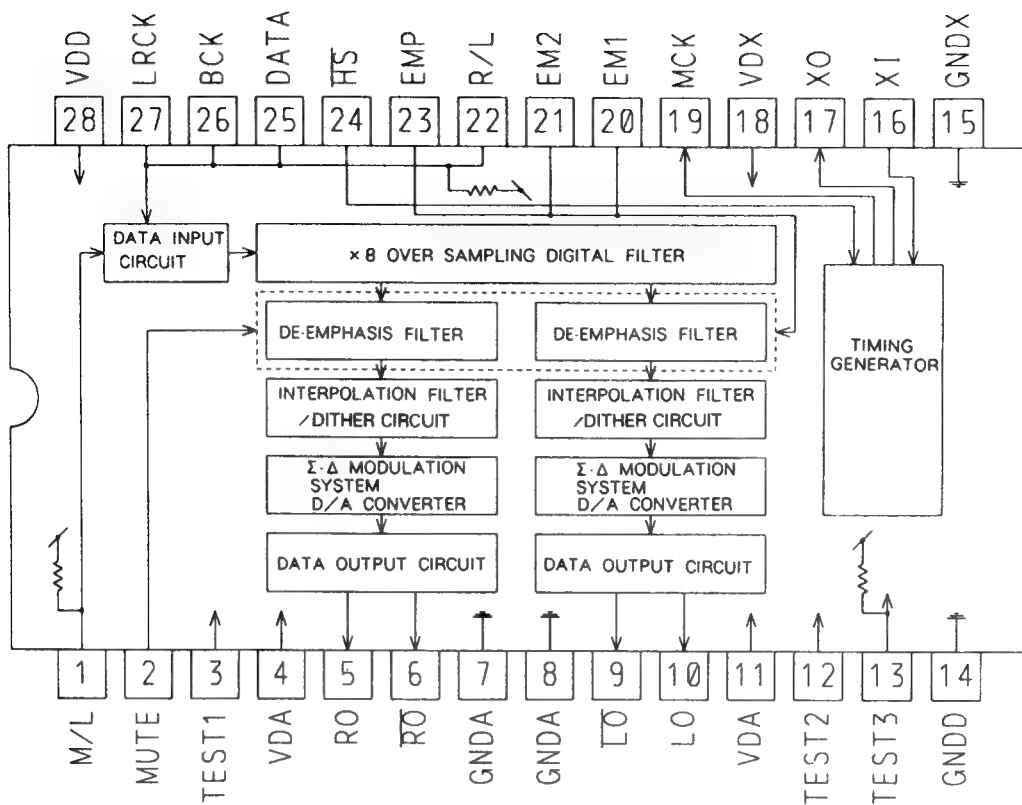
MC14052BF



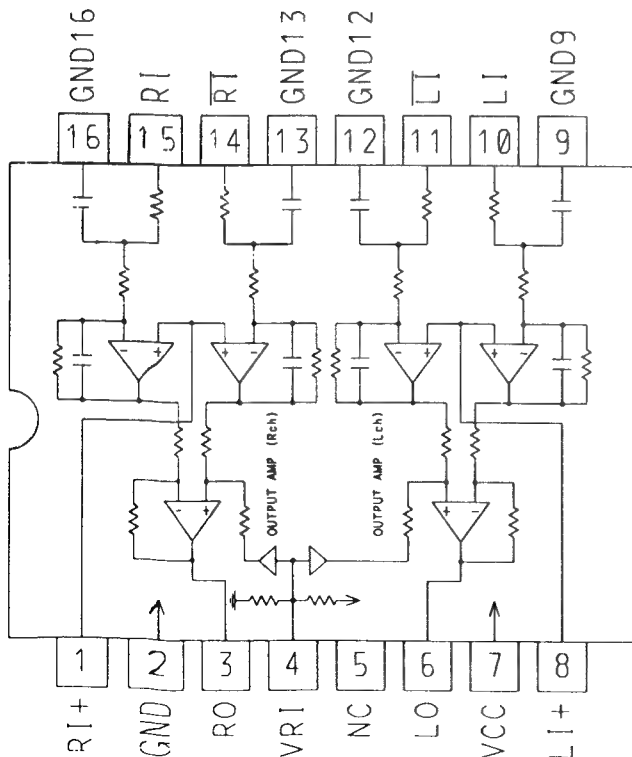
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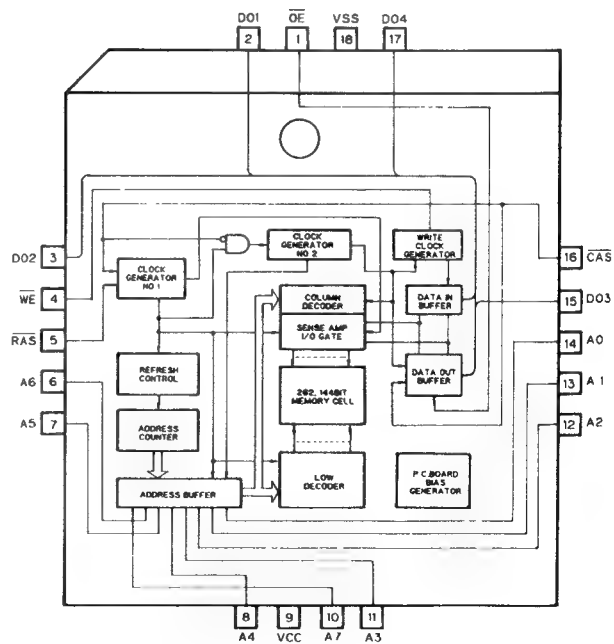
TC9237F



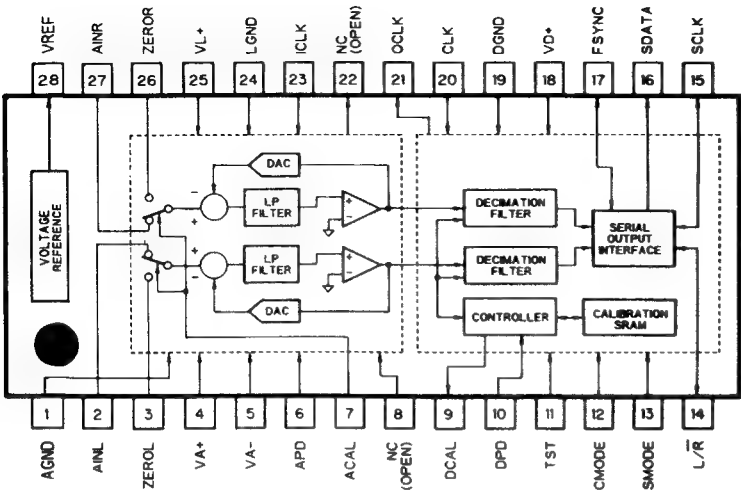
TA2009F



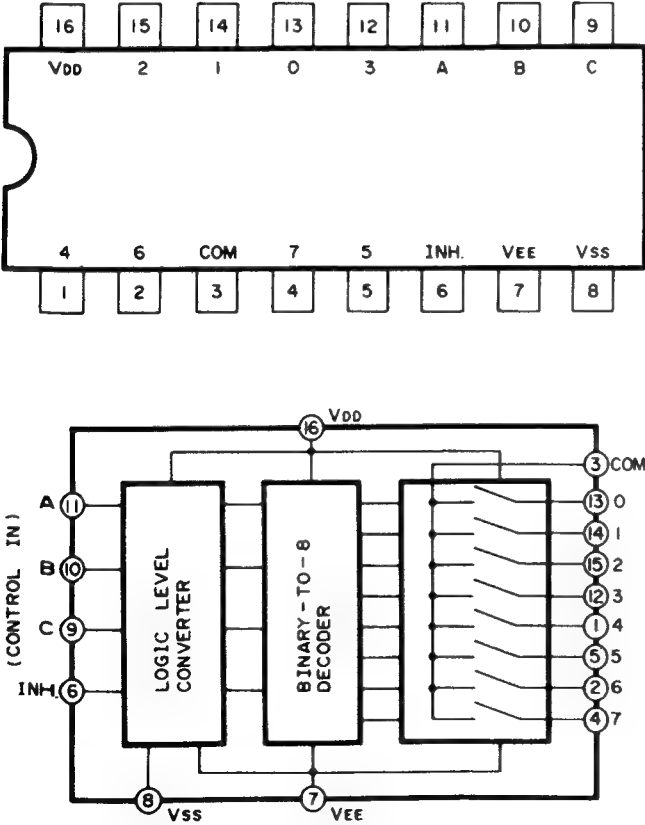
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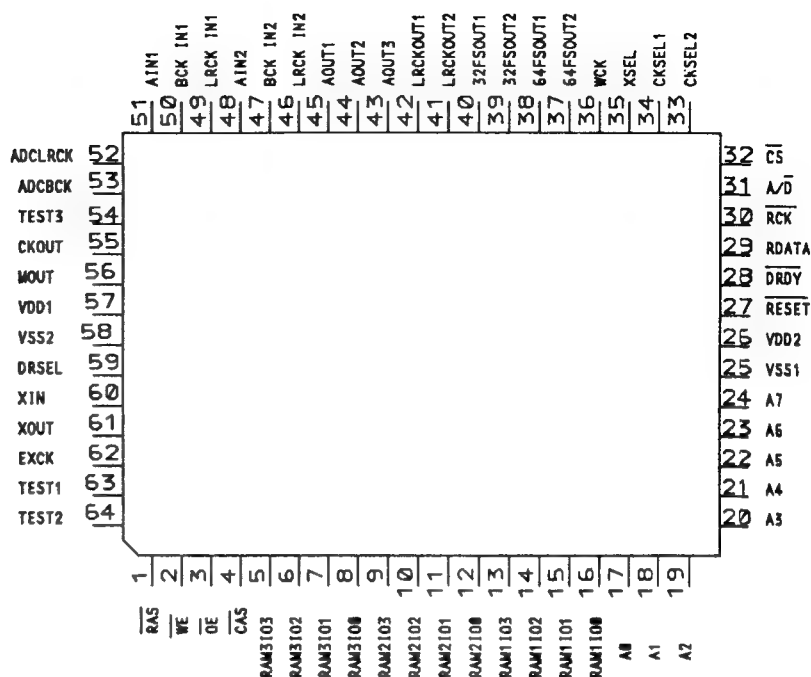
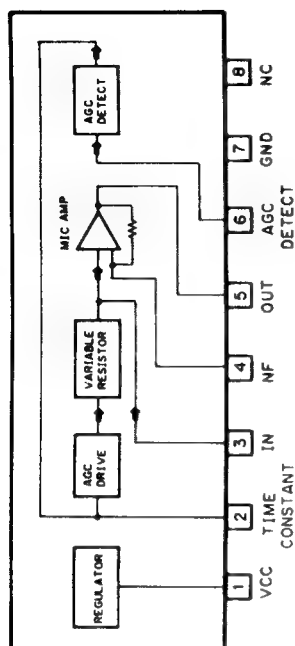
CS5339-KS



TC4051BF



Control input				CH.
INH.	C	B	A	
L	L	L	L	0
L	L	L	H	1
L	L	H	L	2
L	L	H	H	3
L	H	L	L	4
L	H	L	H	5
L	H	H	L	6
L	H	H	H	7



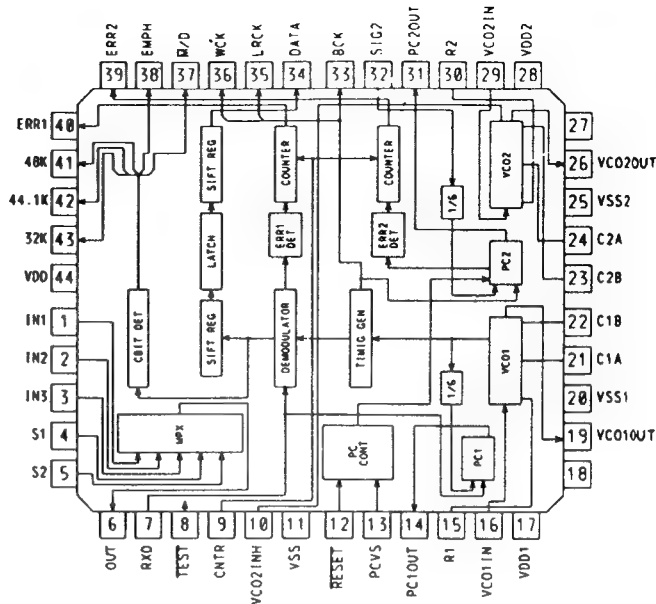
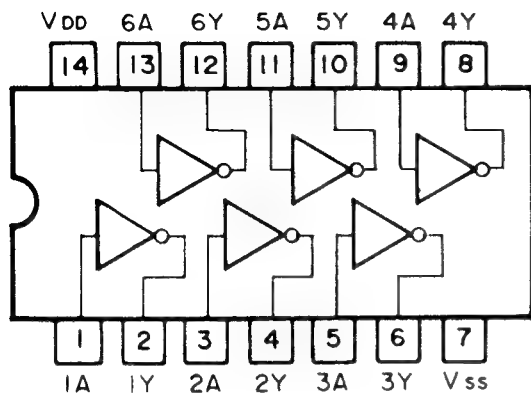
• Pin Functions (PD00551)

Pin	Pin Name	I/O	Function and Operation
1	$\overline{\text{RAS}}$	O	Low address strobe terminal for external DRAM
2	$\overline{\text{WE}}$	O	Write enable terminal for external DRAM
3	$\overline{\text{OE}}$	O	Output enable terminal for external DRAM
4	$\overline{\text{CAS}}$	O	Column address strobe terminal for external DRAM
5 7 8	RAM3IO3 : RAM3IO0	I/O	Data I/O terminal for external DRAM
9 11 12	RAM2IO3 : RAM2IO0	I/O	Data I/O terminal for external DRAM
13 15 16	RAM1IO3 : RAM1IO0	I/O	Data I/O terminal for external DRAM
17 19 24	A0 : A7	O	Address output terminal for external DRAM
25	VSS1		Ground terminal
26	VDD2		Power supply terminal
27	$\overline{\text{RESET}}$	I	Reset signal input terminal
28	$\overline{\text{DRDY}}$	O	Micro processor I/F data reception enable output terminal
29	RDATA	I	Micro processor I/F data input terminal
30	$\overline{\text{RCK}}$	I	Micro processor I/F clock pulse input terminal

Pin	Pin Name	I/O	Function and Operation
31	A \overline{D}	I	Micro processor I/F address data discrimination input terminal
32	\overline{CS}	I	DASP chip select input terminal
33	CKSEL2	I	Select terminal for clock pulse output from CKOUT
34	CKSEL1	I	Select terminal for master clock pulse frequency
35	XSEL	I	Select terminal for oscillation/external clock pulse
36	WCK	O	Word clock pulse output terminal
37	64FSOUT2	O	64FS bit clock pulse output terminal
38	64FSOUT1		
39	32FSOUT2	O	32FS bit clock pulse output terminal
40	32FSOUT1		
41	LRCKOUT2	O	LR clock pulse output terminal
42	LRCKOUT1		
43 45	AOUT3 AOUT1	O	Lch, Rch audio serial data output terminal
46	LRCKIN2	I	LR clock pulse input terminal 2 for reading in audio serial data
47	BCKIN2	I	Bit clock pulse input terminal 2 for reading in audio serial data
48	AIN2	I	Lch, Rch audio serial data input terminal 2
49	LRCKIN1	I	LR clock pulse input terminal 1 for reading in audio serial data
50	BCKIN1	I	Bit clock pulse input terminal 1 for reading in audio serial data
51	AIN1	I	Lch, Rch audio serial data input terminal 1
52	ADCLRCK	O	LR clock pulse output terminal to A/D converter
53	ADCBCK	O	Bit clock pulse output terminal to A/D converter
54	TEST3	I	Test mode terminal
55	CKOUT	O	Internal system clock pulse or master clock pulse 3/2 division output terminal
56	MOUT	O	Master clock pulse output terminal
57	VDD1		Power supply
58	VSS2		Ground
59	DRSEL	I	DRDY logic select terminal
60	XIN	I	Crystal oscillator connection terminal
61	XOUT	O	Crystal oscillator connection terminal
62	EXCK	I	External clock pulse input
63	TEST1	I	Test mode terminal
64	TEST2	I	Test mode terminal

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*PD0075

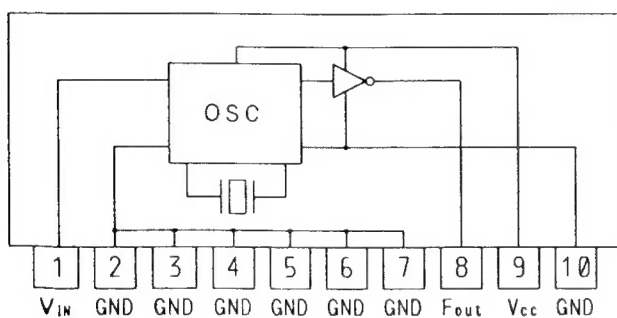


• Pin Functions (PD0075)

Pin No.	Pin Name	I/O	Function and Operation	
1	IN1	Input	Data input 1.	Digital audio data input of EIAJ format. (TTL level)
2	IN2	Input	Data input 2.	
3	IN3	Input	Data input 3.	
4	S1	Input	Input selector 1. (TTL level)	
5	S2	Input	Input selector 2. (TTL level)	
6	OUT	Output	Data MPX output.	
7	RXD	Input	Data input. Normally connected to OUT (CMOS level).	
8	TEST	Input	Test mode input. Normally fixed at "H". (TTL level)	
9	CNTR	Input	Counter clock input for ERR1/2 output time (CMOS level).	
10	VC02 INH	Input	For VC02 oscillation stop. Oscillation stop at "H". (TTL level)	
11	VSS		Logic VSS.	
12	RESET	Input	Power ON reset input.	
13	PCVS	Input	VC01/2 self-run frequency setting input.	
14	PC1OUT	Output	Phase comparator 1 output.	
15	R1		VC01 regulating resistor connection terminal.	
16	VC01 IN	Input	VC01 control voltage input.	
17	VDD1		VC01 VDD.	
18			Not used.	
19	VC01OUT	Output	VC01 output. (384fs)	
20	VSS1		VC01 VSS.	
21	C1A		VC01 regulating capacity connection terminal.	
22	C1B		VC01 regulating capacity connection terminal.	
23	C2B		VC02 regulating capacity connection terminal.	
24	C2A		VC02 regulating capacity connection terminal.	
25	VSS2		VC02 VSS.	
26	VC02OUT	Output	VC02 output. (384fs)	
27			Not used.	

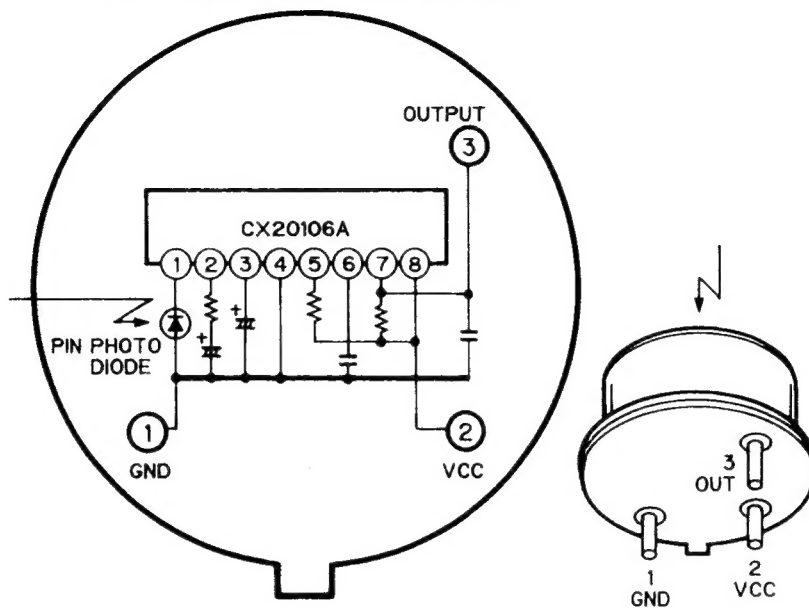
Pin No.	Pin Name	I/O	Function and Operation
28	VDD2		VC02 VDD.
29	VC02IN		VC02 control voltage input.
30	R2		VC02 regulating resistor connectin terminal.
31	PC2OUT	Output	Phase comparator 2 output.
32	SIG2	Input	V input of phase comparator 2. Normally connected to VC02OUT.
33	BCK	Output	Demodulation data bit clock output.
34	DATA	Output	Demodulation audio data output.
35	LRCK	Output	Demodulation data L/R channel output. L channel at "H".
36	WCK	Output	Demodulation data word clock output.
37	M/D	Output	MUSIC/DATA selection information output. MUSIC at "L".
38	EMPH	Output	Emphasis information output. With emphasis at "H".
39	ERR2	Output	2nd PLL UNLOCK output. UNLOCK at "H".
40	ERR1	Output	1st PLL data read error output. Error at "H".
41	48K	Output	Sampling frequency information output. Open drain for LED driver. Active at "L".
42	44.1K	Output	Sampling frequency information output. Open drain for LED driver. Active at "L".
43	32K	Output	Sampling frequency information output. Open drain for LED driver. Active at "L".
44	VDD		Logic VDD.

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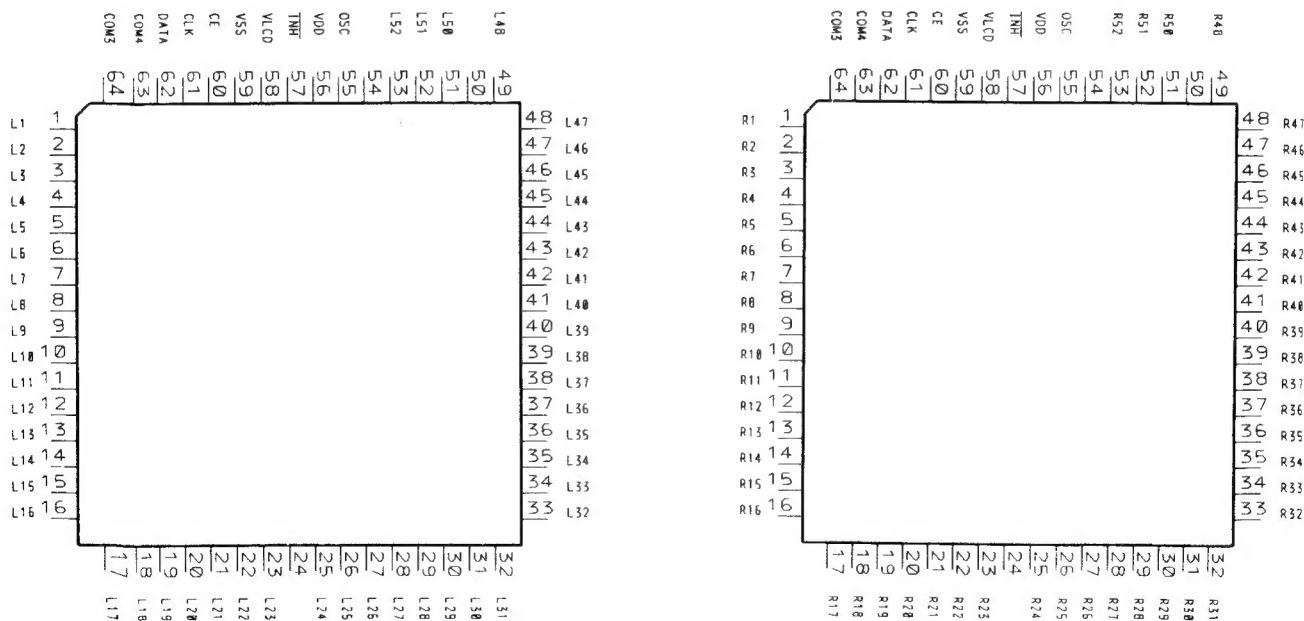


BX-1393

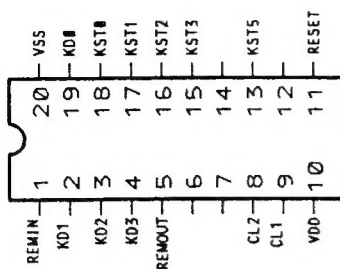
BX-1393 (BOTTOM VIEW)



*LC7582A



*PD4334B



• Pin Functions (PD4334B)

Pin	Pin name	I/O	Output Format	Function
1	REMIN	input		Remkote control input
2-4	KD1-KD3	input		Key matrix date input
5	REMOUT	output	NM	Key microcomputer outputs
6-7	NC	output	NM	Not used
8	CL2			System clock
9	CL1	input		System clock
10	VDD			Power supply
11	RESET	input		Reset input
12-18	KST0-KST6	output	NM	Key strobe output
19	KD0	input		Key matrix date input
20	VSS			GND

Output Format	Meaning
NM	Middle resistivity N channel open drain

SAFETY INFORMATION

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.